THE CITY OF CALGARY
Parks & Recreation/Transportation Depts.

Calgary Pathway & Bikeway Plan

Report

May, 2000

PATHWAY AND BIKEWAY PLAN

IBI GROUP

103-06019/

STATUS

REPORT	Adopted by City Council 2000 July 3
MAP	Adopted as amended by City Council 2000 July 3. Refer to MAP 'A' - revision 3, located in the map pocket at the back of this report, for the Pathway/ Bikeway Plan.

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EXECUTIVE SUMMARY

INTRODUCTION

IBI Group has been retained to prepare a comprehensive set of guiding principles relating to the planning, design and management of Calgary's pathway and on-street cycle route systems: the Pathway and Bikeway Plan. This plan was prepared for a City steering committee composed of members of both the Transportation and Parks & Recreation Departments.

PURPOSE

The purpose of the study is nine-fold:

1. *to develop guiding principles for the planning, design, implementation and management of pathways and bikeways;*
2. *to locate conceptual ties to regional and national pathway systems;*
3. *to produce a comprehensive and integrated pathway/bikeway plan for the study area (southeast and southwest Calgary);*
4. *to conduct ground-truthing of approved and proposed regional pathway routing;*
5. *to develop policy to support City negotiations with developers respecting pathway and bikeway construction;*
6. *to produce a lifecycle replacement strategy;*
7. *to identify high priority missing links and order of magnitude costing for same;*
8. *to illustrate where the guiding principles fit into the city planning process;*
9. *to provide data architecture for Pathway/Bikeway GIS mapping.*

SCOPE

The study area for this report is the lands south of Memorial Drive, and south of The Trans-Canada Highway west of Shaganappi Trail. Essentially this comprises southeast and southwest Calgary. The guiding principles, system management process and implementation strategies are all applicable on a city-wide basis. The plan was developed in the context of current city policy and practice. It is not intended to supersede approved policy (except where in direct conflict with existing policy), but should be used as a supplement to it. In particular, this study should be read together with the Calgary Cycle Plan, the Parks By-law, the Linear Park Policy and the Calgary Plan.

PUBLIC PARTICIPATION

Consultations were held with a group of about 40 stakeholders through the course of the study. A cross section of city departments and outside interest groups were represented in the stakeholder group. Public involvement entailed issue identification, open houses, workshops and ongoing liaison on issues throughout the plan's development. The results of the public consultation are reflected throughout the plan.

PLAN RECOMMENDATIONS

SYSTEM PLANNING

1. *The Guiding Principles set out in section 2 of this report should be adopted for Pathways and Bikeways.*

EDUCATION, ENCOURAGEMENT, ENFORCEMENT

2. *A staff person (or persons) should be identified in the Parks Department who, as one of his/her roles, coordinates, supports and encourages public education programs relating to cycling, pathway use, and pedestrian issues through a variety of media.*

3. *The City of Calgary should sponsor an annual campaign to be carried out in spring/early summer, to raise awareness and encourage the use of the pathways and bikeways, and provide information about safety, etiquette and the rules of operation of these facilities. The campaign should be timed to coincide with the Commuter Challenge and/or Environment Week.*

4. *The parks and pathways enforcement division should be expanded to provide more extensive coverage of the city.*

5. *The Calgary Parking Authority should continue to expand its bicycle parking program.*

6. *The Land Use By-law should be amended to require bicycle parking as a condition precedent to the granting of a development permit. Guidelines for the amount, location and design of bicycle parking required should be established.*

7. *Partnerships with private sector bike rack suppliers should be pursued.*

SIGNAGE

8. *The Parks and Transportation departments should cooperate to create a pathway and bikeway signage program that is consistent between the two systems, and to the greatest extent possible consistent with the Highway Traffic Act and City of Calgary Traffic Operations Policy Manual. Bikeways should be signed in accordance with the Transportation Association of Canada's "Bikeway Traffic*

Control Guidelines for Canada (1999)" with respect to signage and pavement marking.

9. *A comprehensive sign program should be implemented to address the issues set out in sections 3.4.1 and 3.4.2 of this report.*

LIFECYCLE MANAGEMENT

10. *The Lifecycle Replacement Strategy set out in section 4 of this report should be employed to determine the budget amount annually required for repair and rehabilitation of pathways indicating a high priority need for such work.*

11. *A bikeway hotline or e-mail response system should be established to allow members of the public to report hazards or the need for repairs.*

ROUTE ANALYSIS

12. *That the pathway routes which have been identified as suitable for construction or installation be so indicated on the appropriate community plan or outline plan, and constructed at the time of development (in new communities), or as part of the Parks work program commencing in 2000 (established areas and missing links).*

13. *That the bikeways which have been identified as potential signed bike routes, bike lane, wide curb lane or bike corridor routes be evaluated against all the criteria in Exhibit 2.2 in consultation with adjacent residents and communities, and affected City departments. Ongoing route evaluation should be carried out to coordinate with the biennial production of the Pathway and Bicycle Route Map.*

MISSING LINKS

14. *Key missing links, including new pathways, new bikeways and pedestrian/cycle overpasses should be identified as early as the signing of the Developer Final Acceptance Certificate for the subdivision. When the missing links are identified, they will be classified as priority one development items by the City and budgeted for within the upcoming 5 year capital envelope.*

FUNDING

15. *Bicycle and pedestrian issues must be addressed in all transportation plans and studies. Pathways should be considered and included where possible in all parks and recreational facility plans. The pathway and bikeway coordinators should be consulted in the course of such planning initiatives.*

16. *The City should continue to partner with other governments, outside agencies and community groups to access funding to support education, promotion and development projects related to the pathway / bikeway system.*

IMPLEMENTATION STRATEGY

17. *That Pathway and Bikeway co-ordinator positions be established within the Parks and Transportation divisions to coordinate the planning, development, design, operations and maintenance of the Pathway and Bikeway systems.*

18. *Administration should investigate the expansion of the existing committee (CPAC), or development of a new Citizens' Advisory Committee to address both pathway and bikeway issues.*

    The Citizens' Advisory Committee should encompass representatives from a cross-section of stakeholders and relevant agencies including:

    - *the general public*
    - *runners, walkers, hikers*
    - *cyclists, bicycle messengers*
    - *persons with disabilities*
    - *youth, seniors*
    - *in-line skaters and skateboarders*
    - *other pathway providers (e.g. Fish Creek Provincial Park)*
    - *community associations*
    - *school boards, universities and/or colleges.*

19. *The Corporate Planning Applications Group (CPAG) planning process should ensure that:*

    At the Community Plan stage, pathway alignments and bikeway routing are identified. These facilities should connect to existing and planned linear recreation/ non-motorized mode facilities in adjacent developments.

    At the Outline Plan stage, pathway and bikeway routes are finalized.

20. *The Transportation Department should expand current cyclist and pedestrian traffic counts, and maintain a database of collisions involving cyclists and/or pedestrians.*

21. The Bikeway coordinator should develop a detour policy to address closures of the bikeway system through the Pathway/ Bikeway Coordination team. The detour policy should entail:

- *advance notice of closures by on-site signage;*
- *identification of a suitable detour route for the duration of the closure;*
- *provision of directional signs advising of the detour route;*
- *consultation with the Bikeway coordinator in all major road construction projects at the planning stage.*

22. That Calgary Roads identify a staff person who meets on a regular basis with the Pathway & Bikeway Coordinators to ensure that pedestrian, bicycle, pathway and bikeway issues are co-ordinated and dealt with consistently.

23. The Pathway/Bikeway Coordination Team should develop a program for conducting pathway and bikeway counts every two years, as well as user surveys every four or five years.

24. The Pathway Coordinator should work closely with the "Information Services" section of Parks to:

- *establish a booking system for pathway programs;*
- *ensure the Pathway Hotline is up-to-date; and*
- *ensure that Information Services has sufficient information to answer general public enquiries regarding the pathways.*

25. The Pathway Coordinator should establish location markers along the entire pathway system in conjunction with the development of the signage master plan.

26. That City staff from all affected departments should be provided with appropriate communication and education to inform them of the objectives and principles of the Pathway and Bikeway plan.

27. That the Animal Control by-law (23M89) be amended to indicate that dogs in an off-leash area must not be on the pathway unless:

- *the dog is under its owner's control; and*
- *the dog and owner do not occupy more than half of the pathway, and keep to the right except to pass;*

and that the Parks By-law (36/76, as amended) be amended to be consistent with the Animal Control By-law, according to the foregoing terms.

1.0 INTRODUCTION

1.1 BACKGROUND

The City of Calgary requires a comprehensive set of guiding principles relating to the planning, design and management of its pathway and bikeway systems. IBI Group was retained to prepare the plan and associated strategies. Within the City of Calgary, a steering committee was established to oversee the development of the plan. The steering committee was composed of representatives of both the Transportation and Parks & Recreation Departments.

1.2 PURPOSE

The purpose of this study is nine-fold:

1. to develop guiding principles for the planning, design, implementation and management of pathways and bikeways;

2. to locate conceptual ties to regional and national pathway systems;

3. to produce a comprehensive and integrated pathway/bikeway plan for the study area (southeast and southwest Calgary);

4. to conduct ground-truthing of approved and proposed regional pathway routing;

5. to develop policy to support City negotiations with developers respecting pathway and bikeway construction;

6. to produce a lifecycle replacement strategy;

7. to identify high priority missing links and order of magnitude costing for same;

8. to illustrate where the guiding principles fit into the city planning process;

9. to provide data architecture for Pathway/Bikeway GIS mapping.

1.3 SCOPE

The study area for this report is the lands south of Memorial Drive, and south of The Trans-Canada Highway west of Shaganappi Trail. Essentially this comprises southeast and southwest Calgary. See Exhibit 1.1 for a map indicating the study area.

The guiding principles, system management process and implementation strategies are all applicable on a city-wide basis.

This plan was developed in the context of current approved city policy and departmental practice. It is generally not intended to supersede approved policy (except where in direct conflict with existing policy), but should be used as a supplement to it. In

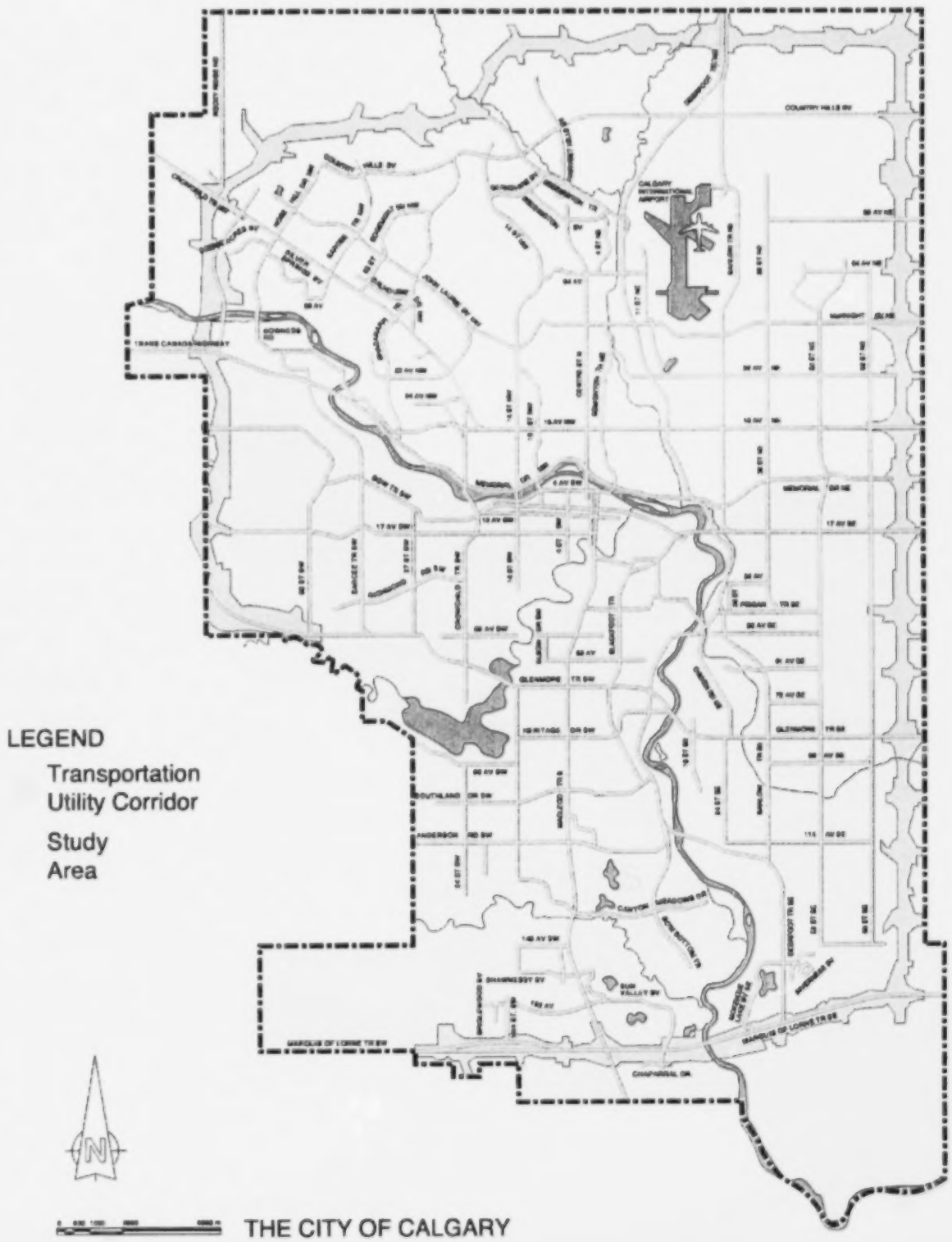

EXHIBIT 1.1: CONTEXT MAP

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particular, this study should be read together with The Calgary Cycle Plan, the Parks By-law, the Linear Park Policy and the Calgary Plan.

1.4 PUBLIC PARTICIPATION

The study was conducted between August and November, 1999. During that time consultations were held with a group of 40 or so stakeholders, representing a variety of city departments and programs, as well as a cross-section of outside interest groups. Stakeholders consulted include:

- Calgary Parks and Recreation: Outdoor Nature Services, Pathway Maintenance, Parks Planning, By-law Enforcement, Natural Areas Management
- Calgary Transportation: Transit, Transportation Planning, Traffic Operations
- Calgary Engineering and Environmental Services: Streets Division
- Calgary Police Service
- City of Calgary Planning and Building Department
- Mount Royal College, University of Calgary
- Elbow Valley Cycle Club, Calgary Mountain Bike Alliance, bicycle messenger community
- National Skate Patrol, Alien In-Line Skate
- Fellowship of Calgary Skateboarders
- Calgary Alternative Transportation Co-op
- Calgary Roadrunners Club, Calgary Area Outdoor Council
- Architectural Barriers Committee, Calgary Pathways Advisory Committee (CPAC), River Valleys Committee
- Alberta TrailNet, Fish Creek Provincial Park
- Calgary Parks Foundation, Urban Development Institute.

Stakeholders were able to participate in the plan's development through issue identification, open houses and workshops. Ongoing liaison on particular issues was conducted with key stakeholders. In addition to the formal stakeholder consultation, members of the general public were able to contribute to the project through the open houses and a project hotline set up to collect public input through the duration of the study.

Many volunteer hours were contributed to this project, and the stakeholders are to be commended for their energy and dedication. The results of the public consultation are reflected throughout the plan.

1.5 LEGAL FRAMEWORK

The statutory framework for the use of roads and sidewalks is established by the Alberta Highway Traffic Act, R.S.A. 1980, c. H-7, as amended (the "HTA"). This Act is supplemented by municipal by-laws including the Traffic By-law (No. 26M96) which governs traffic regulations for roads and sidewalks in Calgary, and the Parks By-law (By-law 36/76, as amended), which sets out the rules for pathways.

1.6 GLOSSARY OF TERMS

In this report, a number of specialized terms are used. The terms "bicycle" and "pedestrian" are defined within the meaning of the *Highway Traffic Act* (HTA). At present, in-line skaters and skateboarders do not have any particular status under the HTA; they are considered "pedestrians", defined as "a person afoot". Currently in-line skaters and skateboarders are not legally permitted on roadways; they may only operate on sidewalks and pathways. A bicycle is a vehicle under the HTA, and may be operated on a road.

For the purpose of this report, unless stated otherwise, the following terms are used and defined as follows:

- **pedestrian:** includes a person walking or jogging, persons in wheelchairs or with mobility aids, people walking their dogs, people with children's strollers, in-line skaters, and skateboarders.

- **bicycle:** means any cycle propelled by human power on which a person may ride, regardless of the number of wheels it has.

- **cyclist:** a person operating a bicycle.

For further clarity, in this Plan, the terms "cycle", "cycling" and "cyclist" do not in any circumstances refer to a moped or motorcycle, or the use thereof.

This report focuses on the Regional Pathway System and the Bikeway System in Calgary. The following definitions are employed in this report:

The **Regional Pathway System** is a City-wide linear network that facilitates non-motorized movement for recreation and transportation purposes. The regional pathway is hard-surfaced, typically asphalt and located off-street. It is a multi-use facility and no one user or type of user is to be given elevated status.

Regional pathways can be broadly characterized into two categories:

Open Space Pathway: a pathway which runs through parks, open space, environmental reserves or along river banks;

Boulevard Pathway: an off-street pathway located in a road right-of-way; generally located where a sidewalk would be expected, i.e. in the boulevard, separated from the roadway by a grassy area. See Exhibit 1.2 for a cross-section diagram of a boulevard pathway.

In addition to the Regional Pathways, there are other facilities which are part of the circulation and recreational systems. These include:

Local Pathway: a pathway that provides secondary routes within communities, linking residential areas to facilities such as neighbourhood parks, schools and other local community destinations. Local pathways may also serve as linkages to the Regional Pathway system.

Trail: a constructed linear path with a granular surface generally located in natural areas. As a management tool they identify intended public routing and can formalize desire lines to minimize impact on the natural environment.

Sidewalk: concrete construction, pedestrian facility generally located in the road right-of-way.

Walkway: a path located between residential units to provide a connection through neighbourhood blocks; may be used by non-motorized users.

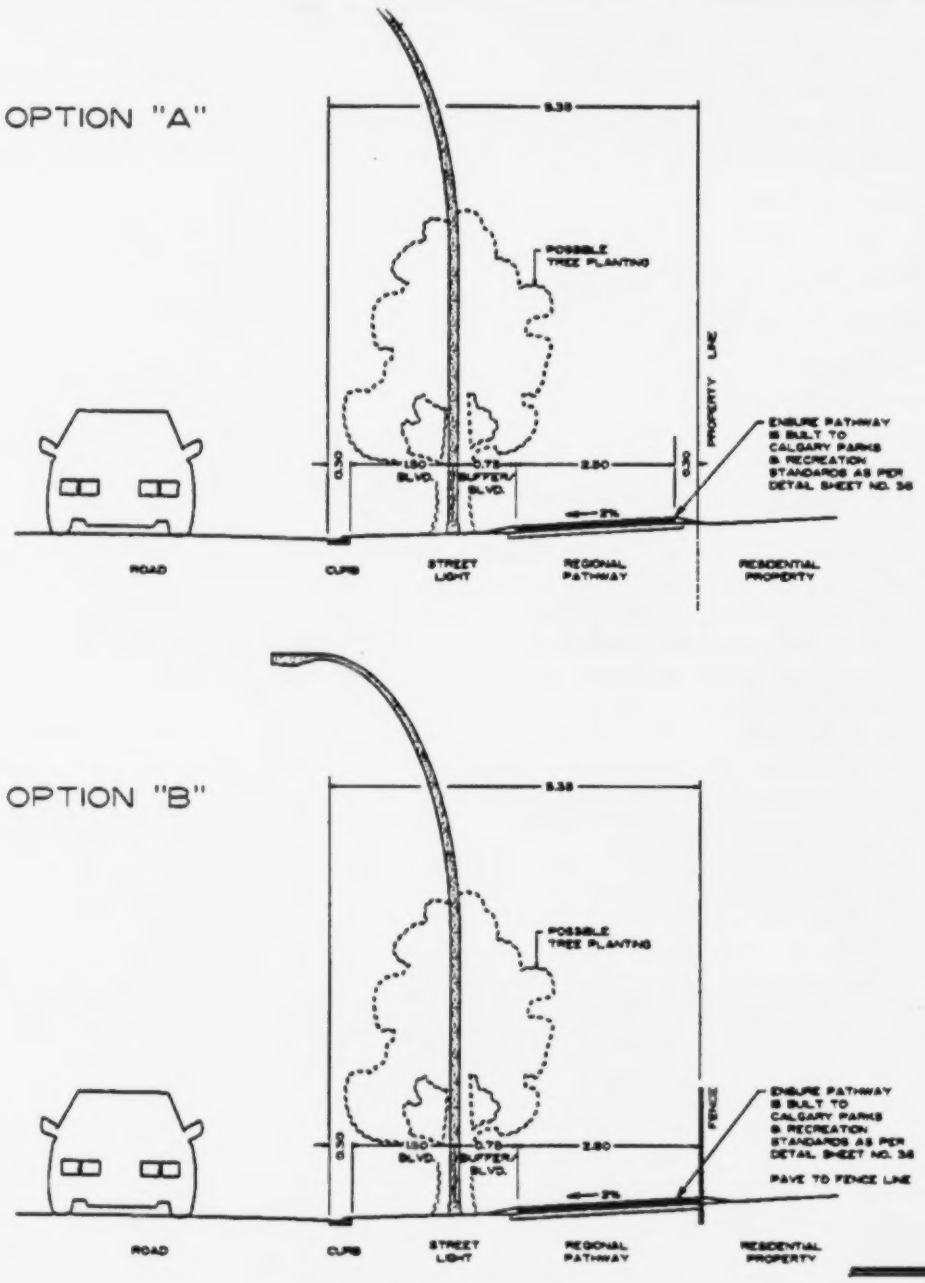
The Bikeway System: all roads in the City of Calgary that are legally open to bicycle travel.

A "bikeway" is defined by the Transportation Association of Canada (TAC) in *Bikeway Traffic Control Guidelines for Canada, December 1998*, and by the American Association of State Highway and Transportation Officials (AASHTO), as:

> Any road or path which is specifically designated as being open to bicycle travel, regardless of whether or not such facilities are designated for the exclusive use of bicycles, or are to be shared with other transportation modes.

While the TAC definition of "bikeway" includes paths, in Calgary, bikeways and pathways are different things. A "bikeway" in the Calgary context is any on-street area open to bicycle travel, while a pathway is off-street. Both bikeways and pathways may be open to cyclists as well as other users.

All roads in Calgary, with the exception of Deerfoot Trail south of 64 Avenue N. and roads specifically banning bicycles such as Stephen Avenue Mall, are bikeways. The term "bikeway" can be further broken down into the following types of facility:



Source: Calgary Parks & Recreation Development Guidelines and Standard Specifications

BOULEVARD PATHWAY CROSS-SECTION **EXHIBIT 1.2**

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- **signed bicycle route:** a street identified as a cycling route by signs and a map – see Exhibit 1.3;

- **wide curb lane:** a road where the curb travel lane is at least 4.3 m (excluding parking) such that motorists and cyclists can safely share the lane. A wide curb lane may be identified by a stencil, signage or other markings – see Exhibit 1.4;

- **marked bicycle lane:** a dedicated and marked on-street traffic lane for the exclusive use of cyclists (may be referred to as a "bike lane") - see Exhibit 1.5;

- **bike corridor:** a route identified and designed to give preference to bicycle traffic through the use of traffic calming devices, favourable stop sign orientation, partial road closures which permit through bicycle traffic, and other techniques - see Exhibit 1.6.

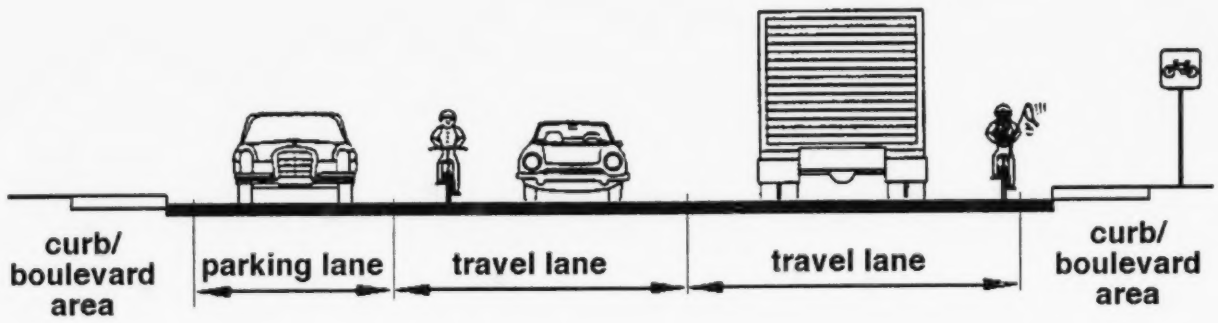
- **shared roadway:** any roadway upon which a bicycle lane is not designated and which may be legally used by bicycles regardless of whether such a facility is specifically designated as a bikeway.

Roadway classifications referred to in this report include local residential, collector, major, expressway and freeway. These terms are used as defined in *The City of Calgary Engineering & Environmental Services Department - Design Guideline for Subdivisions.*

1.7 DEPARTMENTAL NAMES

At the time this study was being prepared, an organizational review of the City of Calgary administration was underway. As a result, departments have been re-structured and re-named. The new structure has not yet been finalized. This study was commissioned by what were previously known as the "Transportation" and "Parks & Recreation" departments. As a result of the organization review, "Transportation" is now part of Land Use and Mobility, and falls under several sub-groups including Transportation Infrastructure, Public Transportation and Planning Policy. The former "Parks & Recreation" is now part of Community Vitality and Protection under various sub-groups including Recreation Programs & Facilities, and Park Development and Operations.

For simplicity, the administrative groups which commissioned this study will be referred to in the body of the report as the "Transportation" and "Parks" departments or divisions. These departmental names may need to be updated once the organizational review is complete.



Source: Adapted from TAC, Geometric Design Guide for Canadian Roads

SIGNED BICYCLE ROUTE - CROSS SECTION **EXHIBIT 1.3**

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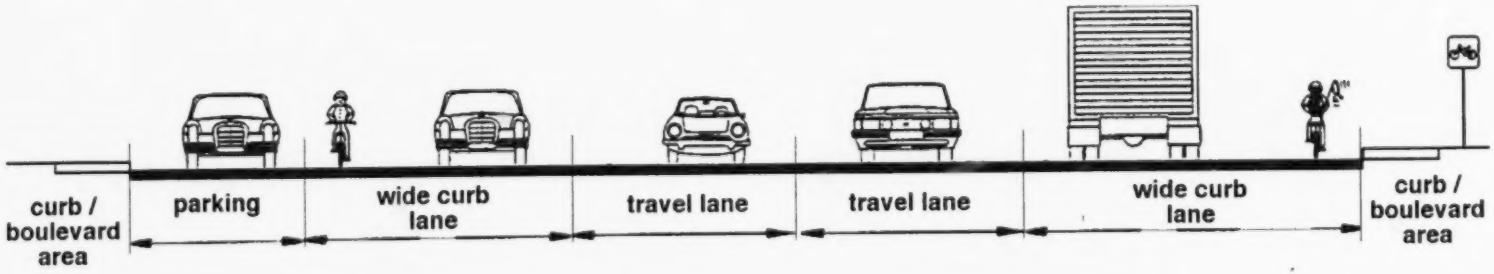

Source: Adapted from TAC, Geometric Design Guide for Canadian Roads

WIDE CURB LANE - CROSS SECTION **EXHIBIT 1.4**

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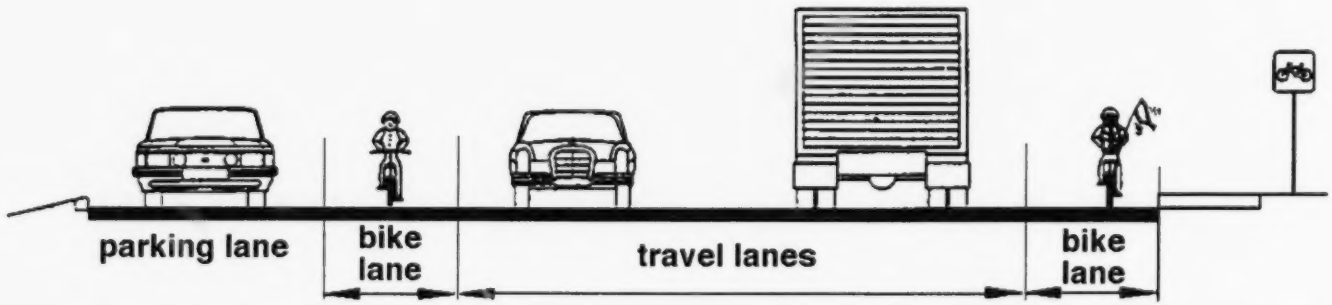

Source: Adapted from TAC, Geometric Design Guide for Canadian Roads

MARKED BICYCLE LANE - CROSS SECTION

EXHIBIT 1.5

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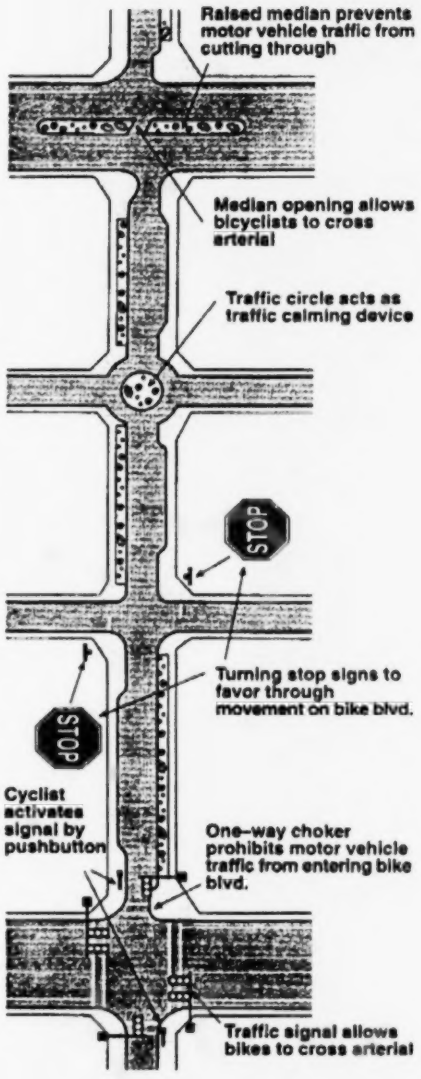
Raised median prevents motor vehicle traffic from cutting through
Median opening allows bicyclists to cross arterial
Traffic circle acts as traffic calming device
STOP
Turning stop signs to favor through movement on bike blvd.
STOP
Cyclist activates signal by pushbutton
One-way choker prohibits motor vehicle traffic from entering bike blvd.
Traffic signal allows bikes to cross arterial

Source: Master Bicycle Plan, Portland, Oregon - Figure A1.18

BIKE CORRIDOR - CONCEPT **EXHIBIT 1.6**

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2.0 GUIDING PRINCIPLES

2.1 INTRODUCTION

A key deliverable of the study is a set of guiding principles that will ensure that the Pathways and Bikeways are planned, developed, maintained and managed as a seamlessly integrated network for transportation and recreation. In this section, a series of principles for the design and development of the network are set out.

The principles were developed over the course of the study. The process entailed a literature review, consultations with other cities, review of comparables in other locations, and the public participation process. The initial results of the research were summarized in the Situational Analysis report presented to the City steering committee in September, 1999. At that time the proposed policy direction for the plan was determined and the principles presented.

2.2 VISION STATEMENT

The City of Calgary is committed to being a healthy place to work and live. It recognizes the importance of walking, running, cycling, wheelchair use, skateboarding, in-line skating and all other non-motorized modes of movement as positive contributors to the urban fabric. These non-polluting modes have inherent value as viable and efficient means of both transportation and recreation. They facilitate healthy and active living, and contribute to overall community vitality.

Calgary embraces the vision of a city of neighbourhoods which are interconnected by a friendly street and pathway network. The network is available to all Calgarians, regardless of age, gender, ability, income or culture. The Pathway and Bikeway Network offers a convenient alternative to the automobile, and provides year-round ability to enjoy linear recreational opportunities.

2.3 TRANSPORTATION AND RECREATION

The pathway and bikeway systems, operating together as a network, are envisioned as an urban system that can serve both transportation and recreation objectives.

This study is premised on the following concepts:

- the primary use of pathways is multi-use recreation
- the primary use of bikeways is bicycle travel
- many trips on pathways and bikeways are made for a combination of fitness, recreation and transportation purposes
- recreation and non-motorized movement have positive benefits for the health and wellness of participants

- recreation and non-motorized movement have positive benefits for the urban environment.

The non-motorized modes of travel, such as walking, jogging, skating and cycling, have inherent recreational and fitness components. Pathway users should be able to access the pathways to travel for whatever purpose they have in mind, whether purely for recreation, transportation, or both combined. When pathways are used for both recreation and transportation it is important is to ensure that the pathways are used **appropriately**, such that all users operate compatibly and with respect for each other.

Many recreational and sport cyclists use the roads not only to travel to a destination, but simply as a way to explore the city and get some exercise. It cannot be said that the bikeways are purely a transportation facility; any bike ride has an element of enjoyment, recreation or fitness to it. Indeed, choosing routes that have some esthetic qualities, where possible, is part and parcel of creating a bikeway network that serves recreational purposes. Again, it is important to ensure that bikeways are used appropriately.

Appropriate pathway use is determined by a number of factors, including:

- multi-use recreation
- volume of users
- limited speed
- pathway role in linking parks and natural areas.

Appropriate bikeway use is determined by:

- Highway Traffic Act provisions governing road users
- bikeway role in linking the main urban facilities.

The Pathway and Bikeway Plan seeks to encourage linear recreation and transportation activities as a means to incorporate exercise into daily life: this is the "active living" philosophy.

GUIDING PRINCIPLE

The pathways and the bikeways should be designed, operated and maintained as a system for moving people via non-motorized modes, whether the purpose of the trip is transportation, recreation, fitness or any combination thereof.

Co-ordinated planning of pathways and bikeways is required to accommodate this principle.

2.4 USER GROUPS

2.4.1 Pathway Users

The regional pathways are for multi-use. Users include:

- pedestrians, including walkers, joggers, runners and dog-walkers;
- people of all ages, from children to the elderly;
- persons with disabilities, e.g. the blind, wheelchair users;
- cyclists;
- skateboarders;
- in-line skaters.

While current design standards are intended to accommodate these users, many older pathway sections are missing elements critical to accessibility, such as curb cuts, a smooth surface, and signage. These older sections need to be brought up to the current standard.

GUIDING PRINCIPLE

Regional pathways should be designed and maintained, and retrofitted where necessary, to accommodate multi-use.

2.4.2 Roadway Users

Presently, the only legally permitted user groups for on-street bikeways are cyclists, and the motorists who share the roadways. In practice, in-line skaters and skateboarders are becoming more prevalent on roadways. The continuous and smooth asphalt surface is more attractive to skaters than the rougher concrete of sidewalks. Their use of the road can reduce conflicts with pedestrians using the sidewalk.

In other jurisdictions, in-line skaters are tolerated or even legally permitted in bike lanes or general roadways. To legally permit in-line skaters or skateboarders to operate on the roadway or any portion of it would require amendment of the provincial Highway Traffic Act. The Transportation Association of Canada (TAC) suggests that if skaters are permitted on roads, a by-law should be passed which would prohibit "reckless" or "endangering" activity by skaters.

GUIDING PRINCIPLES

Calgary should pursue the possibility of permitting in-line skaters and/or skateboarders to operate on low volume, low speed streets, and in bike lanes (should these be constructed).

Should in-line skaters and/or skateboarders be permitted on certain roads, an accompanying by-law should be passed prohibiting reckless or dangerous behaviour.

2.4.3 Sidewalk Users

Cyclists are not permitted to ride on sidewalks, with the exception of children and newspaper carriers. No change to this regulation is recommended, with certain exceptions which are presented to clarify the existing situation and to maintain continuity of the network.

At present, in-line skaters and skateboarders are permitted to operate on sidewalks outside of the "Central Traffic Zone" (essentially the downtown area). The ban on sidewalk skating in the downtown was enacted in 1998. This ban effectively prevents the use of in-line skates or skateboards for downtown transportation, thereby eliminating these pollution-free modes from operating in the most intensive employment district in the city. With proper education, enforcement and by-law provisions governing safety, skaters of all types should be able to safely share the sidewalk with other pedestrians in the downtown as well as the outer areas.

GUIDING PRINCIPLES

Where a sidewalk segment is designated a pathway, it should be signed as a pathway, and cyclists should be permitted to ride on it.

On roadway bridges, cyclists should be permitted to use the sidewalks where the roadway does not accommodate bikes.

In-line skaters and skateboarders should be permitted to operate on the sidewalks in the Central Traffic Zone, subject to by-law provisions regarding:

- *maximum speed,*
- *prohibition of reckless or dangerous behaviour,*
- *a requirement to share the sidewalk,*
- *a requirement to yield to slower moving pedestrians.*

2.5 NETWORK DEVELOPMENT: PRINCIPLES

2.5.1 The network

The pathways and bikeways are two components of a city-wide network. This plan seeks to better integrate the two, while ensuring appropriate use for each.

The pathways have grown in popularity. There has been a corresponding growth in the number of complaints regarding user conflicts. Cyclists and in-line skaters are frequently cited as a cause of conflict because of the speed differential between them and pedestrians. One reason for creating bikeways is to provide cyclists with an alternative to the pathways. If higher speed cyclists can feel comfortable on the roads, it will take pressure off the multi-use pathway system and reduce some user conflicts. As well, there may be an opportunity for in-line skaters to make greater use of roadways which could also reduce user conflicts on the pathways.

The overall network objective is to ensure that the pathways and bikeways are complementary to each other, providing seamless service to a variety of users, and a range of route options that are suitable for the diversity of users.

2.5.2 Relationship between user groups and the dual system network

The multi-use regional pathways serve a variety of users, including cyclists, who constitute a significant share of pathway users. The bikeways are not for multi-use; they serve only cyclists (although they may eventually accommodate in-line skaters). Hence cyclists are the common link for the two types of facility.

Regional pathways should be continuous, and avoid using streets for linkages. The multi-user recreational nature of the pathways necessitates this principle.

In order to provide continuity in the bikeway system, continuous road routes are preferred. However pathways or walkways (see Exhibit 2.1) may be used as links between bikeway segments to make a route more continuous and/or direct. This is particularly true in communities with curvilinear and discontinuous road patterns.

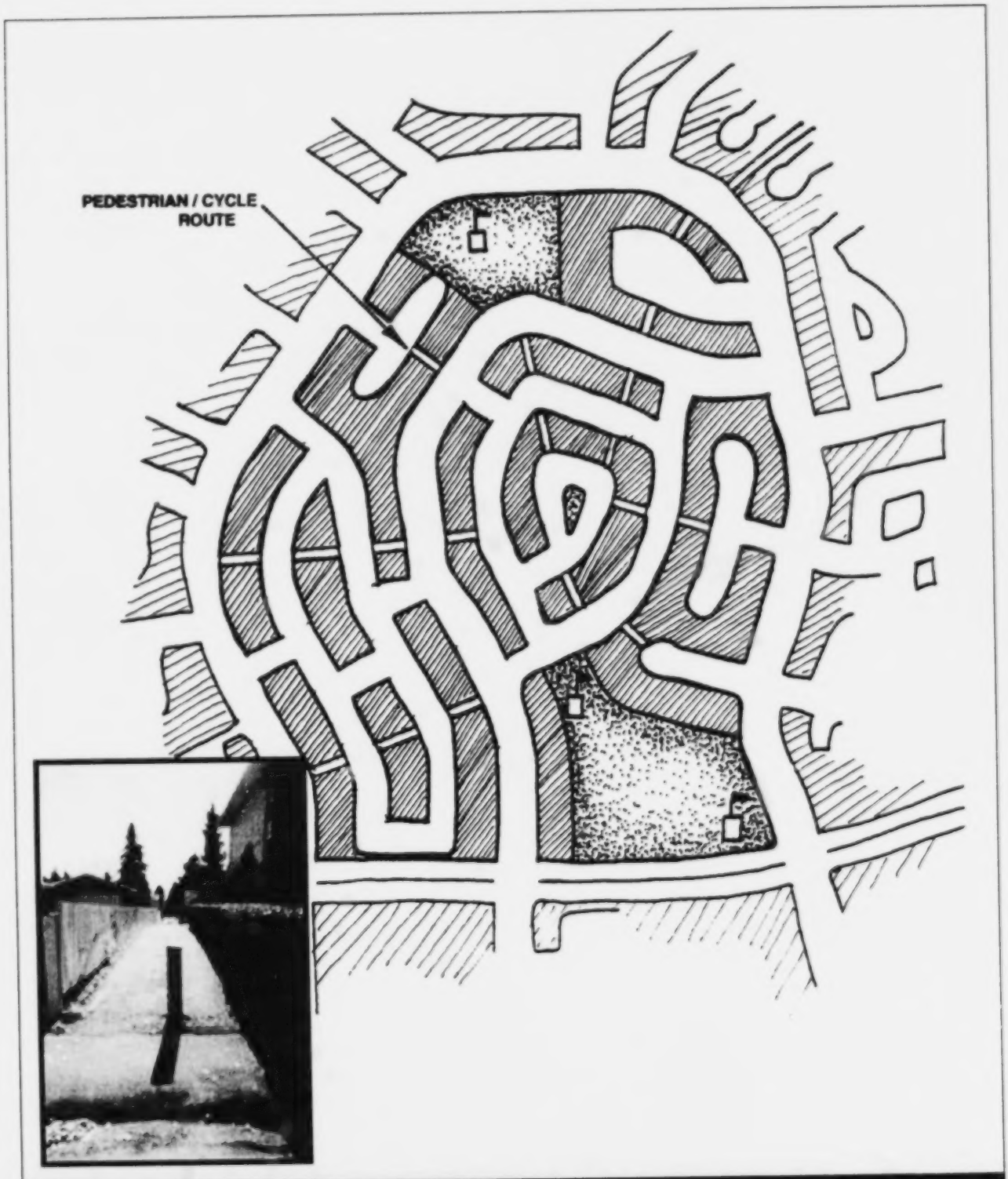
GUIDING PRINCIPLES

The pathways should be continuous to the greatest extent possible to accommodate recreation, and therefore should avoid on-street linkages.

Bikeways should form a continuous on-street network wherever possible.

For developments with indirect and discontinuous road patterns:

- *continuous and direct routes should be provided by a combination of bikeways, pathways and walkways;*



CYCLE/PEDESTRIAN CONNECTOR EXHIBIT 2.1

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- *bikeway, pathway and walkway linkages should be designed, lit and maintained to support safe operation.*

2.5.3 Planning for cyclists on the road network

Beyond the designated bikeways, cyclists are generally permitted to ride on every Calgary road with the main exception of Deerfoot Trail. The road network is a very extensive system, providing access to nearly every origin and destination in the city, and cyclists should be encouraged to use it.

The most functional and appropriate roads for cycling tend to be roads classified as major or lower (collector, local). However many Calgary collector and major roads are not presently hospitable to cyclists, although there are skilled and high-speed cyclists who are comfortable riding in almost any urban conditions. In order to ensure that cyclists have suitable access to the road network, the road network should be designed to accommodate them. In general, bikeways should provide alternate routes to higher speed, higher volume roads.

GUIDING PRINCIPLES

Major and primary collector roads should be designed for both motor vehicles and bicycles.

2.5.4 Network planning

The pathways and bikeways should be planned to form a complete network, without gaps, which serves both transportation and recreation purposes of non-motorized modes. Translating these overarching objectives into reality means creating routes that are:

- continuous
- reasonably direct
- functional, serving a variety of destinations
- part of a network.

In order for the pathways and bikeways to be fully and seamlessly integrated, the two types of facilities must be planned, routed, constructed and maintained as a network in a coordinated manner between the Transportation and Parks Departments.

Some general principles which should apply to designing and integrating the pathways and bikeways are as follows:

- priority for cycle/pedestrian facilities should be based on user information and needs assessments;
- pathways should be routed through parks and open space where possible;

- a regional pathway should be centrally located within a community and follow along a natural feature where possible;
- designated bikeway routes should generally be spaced at regular intervals of 1 to 1.5 km;
- convenient and safe pathway and bikeway access should be integrated with transit facilities;
- pathways should provide access points to streets at regular intervals.

2.6 PATHWAY ROUTE SELECTION AND DESIGN CRITERIA

2.6.1 General

Pathway routes are selected primarily to incorporate the pathways into the open space system. Pathways should connect recreational facilities, and be located within community parks, linear parks and natural areas. However within river valleys and natural areas, the protection of the resource will take precedence. Opportunities to use existing rail, utility rights-of-way and other corridors as part of the regional pathway system should be considered. As well, opportunities to connect the regional pathway system with pathway and trail initiatives of other agencies should be pursued (e.g. Alberta TrailNet, Rails to Trails programs).

Pathway routes are designed to provide visual amenity, variety and connectivity between communities as part of the city-wide open space system.

In general, pathways should be planned to provide two routes bisecting a community, and to cross the surrounding barriers to all neighbouring communities.

Where possible, pathways should be built parallel to new LRT routes.

A comprehensive list of pathway route selection criteria is set out in Exhibit 2.2.

2.6.2 High use areas

Where high-use is experienced or anticipated, pathway routing should accommodate a wider than standard pathway (e.g. 4.0 m or greater), or twinned pathways.

Twinning may be employed to alleviate congestion and improve the pathway experience for all. However, where possible, the separation of higher-speed cyclists from pathway traffic should primarily be accomplished by creating a parallel bikeway route.

Sufficient separation between the twinned portions should be provided to discourage crossover traffic between the two. The divergence of the twinned areas should be marked both at the beginning and the end of the twinned section, as well as along it. Marking should include both signs and stencils on the pathway indicating the permitted or

PATHWAYS: PROPOSED ROUTES - EVALUATION CRITERIA

I. Functional Criteria

- recreational potential
- connects to other pathways (regional, local)
- connects parks and natural areas to each other
- serves destinations - connects residential areas to:
  - schools/ college / university
  - places of employment (downtown, suburban, industrial)
  - shopping
  - cultural/arts facilities, etc.
  - other residential areas
- provides a pathway/bikeway function, when required

II. Location Criteria

- prefer locating on public property: parks, utility r.o.w.s, etc.
- personal security / informal surveillance and safety
- views, esthetic values
- vegetation – location of major trees
- topography:
  - desirable maximum longitudinal grade of 5%
  - transverse grades
  - water crossings
  - slope stability
  - drainage
- sufficient space to provide 4.5 to 5.5 m pathway corridor or twinned pathways
- can link to streets at regular intervals with safe street crossings

Pathway route should:

- be located adjacent to, but not through, environmentally sensitive areas/ important habitat
- avoid steep terrain
- avoid location in alleys, driveways, parking lots
- avoid location in boulevard of a major road with frequent intersections and driveways
- avoid creating a need for a pedestrian/cycle overpass or underpass
- avoid mid-block crossings

PATHWAY ROUTE SELECTION CRITERIA **EXHIBIT 2.2**

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prohibited users. Note: winter snow clearing will result in a single pathway for multi-use due to reduced conflict during the lower use season.

2.6.3 Boulevard pathways

A boulevard pathway is an-off street pathway located in a road right-of-way, and is typically located where a sidewalk would be expected.

The boulevard pathway can create a difficult or confusing situation by placing cyclists and other users in the path of motorists when it crosses roadways, alleys and driveways, and generally creating bicycle traffic which goes against the normal flow of motor vehicle traffic.

However there are cases where a boulevard pathway is the only feasible alternative, such as roads with very high truck traffic, or high-volume roads with constrained widths which cannot safely accommodate cyclists on the roadway. With appropriate design, the boulevard pathway can be an acceptable solution. Where a boulevard pathway is proposed, the design criteria set out below should be employed.

GUIDING PRINCIPLE

Where a pathway is to be located adjacent to a road in a boulevard, the following route selection and design criteria should apply:

- *the pathway is generally separated from all motor vehicle traffic;*
- *there is a commitment to provide pathway continuity throughout the corridor;*
- *the pathway can be terminated at each end onto streets with good cycle/pedestrian facilities, or another well-designed pathway;*
- *there is adequate access to local cross-streets and other facilities along the route;*
- *avoid routing pathways along boulevards in front of residential development;*
- *avoid routing pathways on boulevards in non-residential areas where spacing of driveways, cross-streets and alleys is less than 200 m;*
- *consider the location of underground and above-ground utilities;*
- *consider plans for future road widening or interchanges;*
- *any needed grade separation structures should not add substantial out-of-direction travel distance;*
- *a minimum 2.25 m width should separate the pathway from the edge of the roadway;*

- *where a boulevard pathway intersects a roadway, signage or roadway design should alert motorists to the potential crossing by cyclists and pedestrians – e.g.,*
  - *coloured crosswalk or bike stencil in the pathway crosswalk area;*
  - *signage indicating pedestrian/cyclist crossing.*

2.6.4 Pedestrian/Cycle Overpasses

There are many existing pedestrian/cycle overpass structures in Calgary, and a long list of desired future projects of this type. These overpasses entail a major capital expenditure and can remain in the planning stage (i.e. unfunded) for a long time.

From a policy perspective, it is preferable to design roadway intersections from the outset (or as part of a re-design/retrofit) so that pedestrians and cyclists can safely and comfortably use the level intersection. This avoids the necessity of constructing a parallel, separate facility for pedestrians and cyclists. For example, where a major road is divided by a raised median, at intersections the median can be designed with curb cuts. The median thus provides a refuge, allowing pedestrians and cyclists to make the crossing in two stages - one for each break in opposing direction of traffic.

However, pedestrian/cycle overpasses may be necessary and/or desirable when it is unlikely that a retrofit project will occur in the foreseeable future, or where there is no road intersection planned but a pedestrian/cycle route is needed. Where a pedestrian/cycle overpass is planned, a set of design and location criteria are recommended for the overpass and its approaches.

GUIDING PRINCIPLES

Intersections should be designed so that pedestrians and cyclists may safely use them, to avoid the necessity of constructing a separate facility.

Pedestrian/cycle overpasses should be considered with and included in the budget of all major capital projects such as interchanges and LRT extensions.

Where a pedestrian/cycle overpass is necessary, the following design guidelines should be employed:

- *Approaches to the overpass on both sides should, where possible, connect to both the regional pathway system and a street which can connect to the bikeway network.*
- *Hairpin turn designs should be avoided.*
- *The overpass and its approaches should be designed using Crime Prevention Through Environmental Design (CPTED) principles. Specifically:*

- *the area should be well-lit,*
- *vegetation should be kept away from the immediate approach to ensure good visibility and avoid the creation of hiding places, and*
- *multiple exit routes should be available at either end of the bridge – e.g., travel should not be restricted to a single fenced corridor with only one escape route.*

- *Pedestrian/cycle overpasses should not terminate in an alley, unless the alley is well-lit, and signage is provided to direct overpass users to the closest streets, sidewalks and pathways.*

2.7 PATHWAY DESIGN GUIDELINES

Once the decision to build a regional pathway segment has been made, the design criteria set out in the current edition of Calgary Parks and Recreation's *Development Guidelines and Standard Specifications for Landscape Construction* should be applied. In addition, the following guidelines should be applied.

Surface

A smooth asphalt surface is the preferred material for pathways. While concrete is more durable, asphalt is less expensive and provides a smoother ride for cyclists, in-line skaters and persons in a wheelchair or motorized scooter. Motorists and pathway users often mistake concrete boulevard pathways for sidewalks. The use of asphalt for boulevard pathways provides an important visual cue and enables all users to clearly make the distinction between a multi use pathway and a sidewalk.

Markings

A yellow centre line is imperative for all regional pathways. The centre line is an important visual cue to distinguish a regional pathway from a sidewalk. It indicates the requirement to keep to the right and yield half the pathway to oncoming users. The centre line should be repainted as often as necessary to remain visible. This is especially important in high-use areas and areas of constrained width, such as cycle/pedestrian bridges.

Intersections

A series of guidelines are necessary for intersection design. These include the following:

- Pathway intersections should be marked with a sign from all directions, such as a stop, yield or warning sign. Visual clearance from all directions must be sufficient to allow pathway users to see each other.

- Pathways should intersect streets at a right angle. A curb cut making a smooth transition between the street and pathway is imperative.

- A pathway/street intersection should be marked on the pathway by a warning sign or bollard. Bollards must be positioned to allow a wheelchair or bike with trailer to easily pass on either side, with a minimum 1.0 m space, 1.5 m preferred.

- Either one or three bollards should be used, never two. The centre bollard must be removable. Using only two bollards will channel users into the centre of the pathway, setting up potential head-on collisions.

- Where a pathway crosses a roadway, whether at an intersection or a mid-block crossing, the roadway should be marked with signs warning of a pedestrian/cycle crossing. It may be desirable to use pavement markings, such as striping or coloured asphalt, to delineate the pathway route. The pathway should also be marked with a stop or yield control sign consistent with Transportation Association of Canada (TAC) Guidelines.

- A "right of way" rule should be developed for pathway/roadway interfaces. It is recommended that a pathway be treated the same as a driveway, such that persons exiting the pathway must look in all directions before entering the roadway. A full stop is not necessarily required. Where the road is a collector standard or higher or sightlines prevent an adequate view of approaching vehicles, pathway users should be required to make a full stop before entering the roadway, and such requirement should be marked with a sign. Cyclists should be permitted to ride across the roadway at pathway/roadway interfaces so long as they yield the right-of-way to pedestrians on the sidewalk and vehicles on the roadway.

- A standard street identification sign (e.g. "Signal Hill Drive") should be located wherever a pathway terminates at a street, as a guide for users.

Accessibility

The Barrier-Free Design Guide produced by the Alberta Safety Codes Council should be referred to for all pathway construction and reconstruction, as well as maintenance. Important considerations include:

- use ramps instead of or in addition to stairs;

- provide a smooth surface as much as possible – e.g. avoid the use of textured pavement or interlocking bricks;

- provide a smooth transition to roadways and sidewalks, through the use of curb cuts or wheelchair ramps;

- desirable maximum slope of 5%;

- changes in direction or grade, intersections and other changing features should be delineated with cane-detectable and tactile cues for the visually impaired.

GUIDING PRINCIPLES

The standards for pathways should be revised to incorporate the recommended design guidelines set out in section 2.7 of this report.

A right-of-way rule should be developed for pathway/roadway interfaces, consistent with the discussion in section 2.7 of this report.

2.8 BIKEWAY ROUTE SELECTION PROCESS AND CRITERIA

2.8.1 Introduction

The Calgary Cycle Plan sets out a proposed "Level of Service" model for selecting streets suitable for cycling (at p. 30). The model was tested by the Transportation Department for a number of proposed cycling routes. The model did not produce consistent results and as a result was found not to be a significant indicator of road suitability for bikeway selection. Consequently the following route selection process and design criteria were developed through this study.

2.8.2 Purpose of designated bikeways

As stated earlier, essentially every road in Calgary is open to cyclists except Deerfoot Trail; however many Calgary roads present an intimidating or hostile environment for cyclists. The purpose of designating particular roads as bikeways is four-fold:

- to provide a "wayfinding" tool for cyclists, to help them navigate the city;
- to identify streets that are lower volume or lower speed options;
- to identify or create routes with sufficient road width to make cycling reasonably comfortable;
- to encourage cyclists to use the street system for travel.

2.8.3 Cyclist skill level

A variety of streets may be suitable for cycling, depending on the ability of the rider. It should be borne in mind that the skill level among cyclists can vary greatly; a confident and skilled cyclist may be comfortable riding on a Calgary "expressway" class road, such as Shaganappi Trail. However, the more typical cyclist would prefer to be on a lower volume or lower speed road.

Ideally, the bikeway network should address the needs of cyclists of all skill levels. The most skilled cyclists do not really need identified routes; they will find their own

preferred routes. The designated routes identified through this study have been chosen as suitable for cyclists who fit into one or more of the following groups:

- a regular or occasional commuter;
- a regular or occasional recreational rider with an understanding of the rules of the road.

It should be made clear that a basic skill set is required of any urban cyclist. Anyone riding in the city on the road should be aware of the rules of the road, and have the ability to signal, brake and generally manoeuver in traffic. (The issue of cycling education is dealt with later in this report.) An urban cyclist should use his or her own best judgement as to whether he or she can safely and comfortably ride on a particular route.

2.8.4 Bikeway route selection process

The task of evaluating roads as potential bikeway routes is a complex process. Many variables are considered, and may carry different weights depending on the context. In general, selecting bikeway routes can be broken down into a five-step process as follows:

1. Identify a need or opportunity for a route in the network.
2. Identify one or more candidate routes.
3. Evaluate the candidate routes against the route selection criteria.
4. Select the route that best meets the desirable criteria.
5. Select the design treatment that best suits the route selected.

Route selection should involve community and public consultation at each stage of the process.

Identifying a need or opportunity for a route can occur through a number of processes. These include:

- a comprehensive network review;
- the community planning process – may apply to both new communities and redevelopment of existing communities;
- a local or community traffic study;
- opportunity: road or bridge construction or re-construction;
- requests or complaints;
- analysis of traffic counts or accident statistics.

The case for "opportunistic" bike route planning should not be overlooked. In the course of regular municipal maintenance roads are re-striped, re-surfaced, widened or upgraded. These occasions should provide an opportunity to make cyclist-friendly improvements.

Evaluating routes for overall suitability is not a scientific process but rather one that involves judgement and weighing the pros and cons of a particular location. This entails a consideration of many competing factors. For example, a route through an industrial area may not be considered a "safe" location for a sole female cyclist at night; however, that does not mean industrial areas should not be served by bikeways.

The competing factors should be carefully weighed against each other, in consultation with both city staff and the concerned public. By using a participatory route identification and selection process, optimal route selections will emerge. (The role of public consultation in route selection is discussed in more detail later in this report.)

2.8.5 Route selection criteria

A variety of bikeway route selection criteria were developed through the study. The criteria reflect the diversity of functions that the bikeways should serve. Hence bikeway routes should connect to a variety of land uses including residential, commercial, industrial, institutional and open space.

Bikeway routes should afford operational comfort and safety for cyclists. Bikeways should be operational 24 hours a day, all seasons. Personal safety is a consideration, especially for women and other potentially vulnerable groups. In communities where pathways do not or cannot exist, a bikeway should be provided.

A comprehensive list of bikeway route selection criteria is set out in Exhibit 2.3.

The criteria were used in this study to evaluate proposed routes in the study area, as well as alternative routes that were suggested through the public consultation process and through site visits.

GUIDING PRINCIPLE

The City of Calgary Transportation department, through the Pathway/Bikeway coordination team (as described in section 8 of the report), should employ the route selection process and criteria set out in sections 2.8.4 and 2.8.5 of this report.

2.9 BIKEWAYS: DESIGN OPTIONS AND CRITERIA

2.9.1 Introduction

Once routes have been selected as candidates for designated bikeways, a range of design treatments are available. The particular design chosen will depend on the nature of the existing road, as well as the future desired environment for a chosen road.

ON-STREET BICYCLE ROUTES: SELECTION CRITERIA

I. Functional Criteria

- continuous
- direct
- serves destinations - connects residential areas to:
  - schools/ college / university
  - places of employment (downtown, suburban, industrial)
  - shopping
  - cultural/arts facilities, etc.
  - other residential areas
  - pathway system or parks
- adds to the network: spaced 1.0 to 1.5 km from another on-street bikeway
- already used as a cycling route
- enables or improves crossing of a major/arterial road, rail line, green space, water

II. Roadway Criteria

- surface type (gravel, paved)
- width of curb lane
- traffic volume in curb lane
- percentage of trucks
- presence of parallel or angled parking - one side or both
- parking turnover rate
- frequency of driveways, alleys, cross-street intersections
- frequency of stop signs and stop lights
- awkward intersections
- presence of double or triple turning lanes
- posted speed limit
- actual speed of traffic
- frequency of transit
- incidence of railway/ LRT track crossings
- topography
- surface condition (potholes, rippling, raised or "unfriendly" sewer covers, erosion, etc.)
- lighting - one or both sides

III. General Criteria

- demand analysis
- adjacent land use
- opportunity: scheduled road resurfacing or widening
- personal security / informal surveillance
- views, esthetic value

BIKEWAY ROUTE SELECTION CRITERIA **EXHIBIT 2.3**

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The Calgary Cycle Plan discusses a number of potential design options to improve the roadway environment for cyclists. The Cycle Plan should continue to be used as a guide for the planning and design of on-street cycling facilities. This plan expands on the Cycle Plan and provides more detailed discussion of the options and how to select the most appropriate street treatment for a particular route.

2.9.2 On-street bikeway options

On-street bikeway options include a signed bike route, wide curb lane, dedicated bike lane, or a "bike boulevard" or "bike corridor". These terms are defined in s.1.4 of this plan. Each is discussed below.

Signed bike route

A signed bike route is the simplest facility to implement: it is marked by signs posted periodically on the street, and is indicated on Calgary's Pathway and Bicycle Route map. A signed bike route is most appropriate for a lower volume residential or collector road. Parking may be present.

A signed bike route requires less road width than some of the other bikeway design options because motor vehicle traffic volumes are low on residential and low volume collector roads. The chance of a vehicle overtaking a bicycle and encountering an oncoming vehicle is lower than on higher volume roads, and the operating speeds tend to be lower. The width of residential and collector standard roads, as defined by the city of Calgary Subdivision Design Standards, do not have to be increased for signed bike routes.

Care should be taken to ensure that creating a signed bike route does not imply that this route is "safer" than any other street for cycling. As stated earlier, urban street cyclists are expected to have a minimum skill set and to use their own best judgement in choosing a route. Nonetheless some minimum standards of road condition and lighting should be in place to ensure a measure of safety before designating a street as a signed bike route.

Wide curb lane

On multi-lane roads, it may be possible to re-stripe the lane configuration to make the curb lane wider.

A wide curb lane is a design option suitable for higher volume collector roads, major roads and some expressway standard roads. A wide curb lane can be implemented on roads with one, two or three lanes in each direction. The wide curb lane should be at least 4.3 m wide to accommodate motor vehicles and bicycles, but should not be wider than 4.6 m. Curb lanes wider than 4.6 m can encourage passing and speeding.

The extra road width can be achieved in a number of ways:

- on primary collector roads with two lanes in each direction:

  - reduce the width of the left lane;

- on major and expressway roads:

  - reduce the curb and gutter width from 0.5 m to 0.25 m (for new construction), and/or

  - reduce the width of the left lane(s).

Re-striping of existing roads can be achieved when existing lane markings fade and are scheduled for repainting.

A wide curb lane should be identified by 1.0 m wide bicycle stencils painted on the asphalt surface at 100 m intervals and "Share the Road" signage as shown in Exhibit 2.4.

Wide curb lanes can be an acceptable on-street bicycle facility for the following reasons:

1. road widening is generally not required;

2. inexpensive to implement and maintain;

3. the sweeping action of passing vehicles tends to keep the wide curb lane clear of sand, gravel, snow and debris. These obstructions have little impact on motorists but are a serious hazard for cyclists. Sand and gravel are used extensively on Calgary roads in the winter. These materials accumulate next to the gutter until spring cleanup is complete;

4. generally does not result in the loss of on-street parking. On-street parking is important to businesses and residents. Removal of parking on proposed bikeway routes should be avoided if possible;

5. promotes "share the road" operation by providing sufficient width for cyclists and motorists.

In addition, wide curb lanes offer some operational benefits for both cyclists and motorists, including the following:

- a wider lane for trucks, buses and other large vehicles which use the curb lane;

- provides room for vehicles overtaking cyclists without encroaching into the left lane or endangering cyclists;

- permits larger vehicles to make right turns with less encroachment on the left lane;

- improves access to right turn "cut off" lanes when traffic is queued at busy intersections.

Source: Bikeway Traffic Control Guidelines, TAC

WIDE CURB LANE - SAMPLE SIGN EXHIBIT 2.4

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Marked bicycle lane

A marked bicycle lane, or "bike lane", is a dedicated traffic lane which is identified by pavement markings and signage consistent with the conventions set out in the Transportation Association of Canada's *Bikeway Traffic Control Guidelines for Canada* (1999). A sample bike lane is shown in Exhibit 1.5.

Guidelines and standards for bike lane construction and intersection design are set out in the current Transportation Association of Canada (TAC) Manual: *Geometric Design Guide for Canadian Roads, 1999* and the Calgary Cycle Plan.

A bike lane should be located in the curb lane, preferably immediately adjacent to the curb on a street with no parking. If parking is present the bike lane must be to the left of the parking lane. The parking lane must be identified using the current TAC-approved pavement markings.

Bike lane width should be a minimum of 1.2 m, 1.5 m desirable, where the bike lane is adjacent to the curb. Bike lanes adjacent to parking should allow for additional width to ensure that open car doors do not encroach on the path of the cyclist.

Bike lanes are intended for the exclusive use of cyclists. However, motor vehicle traffic can enter a bike lane to make turns or gain access to adjacent development.

Bike lanes and wide curb lanes are generally appropriate for the same classifications of road, that is, medium to high volume collector roads, major roads and some expressway standard roads. Bike lanes may be established by reducing the number and/or width of motor vehicle traffic lanes, removing on-street parking or widening the roadway.

A road that meets some or all of the following conditions is a candidate for a bike lane:

- collector road or higher classification;
- roads with medium to high traffic volumes;
- roads with moderate to higher speed traffic;
- few commercial or residential driveways;
- roads with heavy bicycle traffic;
- roads where frequent nighttime usage is expected, such as streets with nighttime entertainment / shopping/ educational/ recreational destinations;
- roads where width is constrained, e.g. bridges, underpasses;
- roads where cyclists require safe crossing at an interchange ramp.

Bike lanes should not be installed if there is/are:

- angled parking;
- high on-street parking turnover;
- steep downgrades;
- surface or pavement interruptions; and/or
- short blocks or many designated right turn lanes where the majority of the bike lane would be dashed or dropped.

The design and installation of a bike lane should entail a detailed design study which analyses the width of the road along the entire length of the proposed route; the need for parking, and parking turnover rate; and whether a possible reduction in motor vehicle capacity on that road is a desirable and/or acceptable outcome, weighed against the benefit of improving the environment for cyclists.

Bus/bike lane or HOV lane

As a result of recommendations from the Calgary Transportation Plan (1994), some city streets are being considered or re-designed for exclusive bus lanes during peak hours. In other jurisdictions HOV (high occupancy vehicle) lanes are reserved for buses, taxis, bikes and carpoolers during peak periods; HOV lanes may some day be adopted in Calgary. The curb lane is usually chosen for a bus or HOV lane on roads which are not free flow. Under the Highway Traffic Act, cyclists are generally required to keep right, which means riding in the curb lane in most circumstances.

The North American standard width for a shared bus/bike lane or HOV lane which permits cyclists is 4.5 m minimum, 4.8 m preferred.

Bike corridor

A bike corridor is an on-street route identified as a good cycling route which is provided with features to encourage and favour cyclist traffic over motor vehicle traffic. (The term "bike corridor" is preferred to "bike boulevard" here to avoid confusion with a pathway in the boulevard.) Refer to Exhibit 1.6 for a diagram illustrating the concept of a bike corridor.

The bike corridor may incorporate a variety of features to make it an attractive cycling route, including the following:

- bicycle-sensitive loop detectors in the roadway to trigger traffic signals;
- cyclist-accessible push-buttons to activate pedestrian crossings or general traffic signals;
- re-orienting stop signs to favour through movement along the corridor;

- cyclist median refuges to assist crossing major roads;
- adjusting signal timing to facilitate and favour cyclist movement through intersections;
- traffic calming to discourage motorists along the route.

A bike corridor is usually established on a grid road that is within a block or two of a major road which is an important shopping and/or employment street. The bike corridor thus serves as a close and convenient alternative to the major road, which is typically a busy street with high parking turnover, many intersections and driveways, or high speed traffic. A bike corridor is especially effective in the higher density urban areas, such as downtown and the inner city. It also works best where the grid system is complete, such that minor grid roads do not "dead-end" but cross major streets. Crossing the major streets can be facilitated by installing signalized crosswalks, or creating a median with a "refuge" area for cyclists to have a safe place to stop half-way across the major road.

Some discussion of traffic calming is warranted here. Traffic calming measures may include:

- curb bulbs or bump-outs;
- roundabouts;
- partial one-way entrances or partial closures;
- chicanes;
- speed tables;
- diverters.

Definitions and examples of these measures can be obtained from TAC's *Canadian Guide to Neighbourhood Traffic Calming* (December 1998).

Traffic calming can be beneficial to cyclists, if it has the effect of reducing motor vehicle speed and generally discouraging motorists from using a particular route (reducing volume). However if not designed properly, traffic calming devices can create hazards for cyclists. For example, a tree planter in the curb lane, if not marked with reflective materials, could be an unseen obstacle at night. Curb bulbs or bump outs which require cyclists to move left could force cyclists to swerve into the path of motor vehicles. All traffic calming devices should be designed so as not to create new hazards for cyclists.

Note that in the "Proposed Routes" section of this report, some routes have been identified as potential bike corridors. Installation of the bike corridor street treatment should be carried out in consultation with the local residents and communities.

GUIDING PRINCIPLES

The preferred street treatment for a selected on-street bikeway should be determined in accordance with the discussion set out in section 2.9.2 of this report.

A designated bikeway should meet the following minimum requirements:

- *road surface should be in average or better condition – particularly in the curb lane - with minimal cracking, potholes and other surface irregularities which could be hazardous to a cyclist;*
- *all drainage grates should be consistent with the City of Calgary's approved "bicycle friendly" design;*
- *lighting should be sufficient to provide a measure of safety and comfort for night cycling.*

A wide curb lane suitable for cycling should be 4.3 m wide, excluding parking.

Where a curb lane is widened to 4.3 m or more, roadway signs should be posted indicating "cars and bikes share the road", and or bicycle symbols painted on the asphalt at regular intervals.

Where a bus lane or HOV lane is located in the curb lane it should be investigated for the ability to safely accommodate cyclists. Where a bus-only or HOV lane is planned to exclude cyclists, a parallel alternative route must be provided for cyclists within a few blocks.

The Bike Corridor design option should be explored for existing and new on-street bikeways.

The needs and safety of cyclists should be accommodated in all traffic calming designs.

2.9.3 On-going issues

Once a designated bikeway has been created, no matter which design is chosen, it is important that the route be maintained at a standard to ensure that cycling on that route is a safe and positive experience. As recommended in part in the Calgary Cycle Plan (Recommendation #21), designated bikeways should have:

- traffic-actuated signals that detect bikes;
- priority spring street sweeping;
- priority winter snow clearing.

In addition to regular maintenance, the bikeways should be inspected on a regular basis to ensure that the curb-area roadway surface is in good condition, and any signs, stripes or stencils denoting the bikeway remain legible.

GUIDING PRINCIPLES

Calgary's Transportation and Roads Departments should coordinate a program to ensure designated bikeways have priority spring and winter maintenance, and are inspected regularly to ensure the roadway surface, line painting, stencils and signs are in good condition.

Bicycle-activated detector loops should be considered at selected intersections on bikeways.

RECOMMENDATION

1. **The Guiding Principles set out in section 2 of this report should be adopted for Pathways and Bikeways.**

3.0 ANCILLARY PROGRAMS AND FACILITIES

3.1 EDUCATION

In the course of the public participation process for this study, it became apparent that education is an important issue for both pathway and bikeway usage. Given the existing user conflicts on both pathways and roads, any expansion of the network should be accompanied by an expanded program of safety awareness and education.

The Calgary Cycle Plan covers education issues and makes several specific recommendations (Recommendations #25-33) regarding the expansion of education programs for bicycle and pathway use. The recommendations in this report are intended to supplement those in the Cycle Plan.

3.1.1 Purpose of education programs

The stakeholder group identified a number of reasons to create new and expand existing education programs. These include:

- to raise awareness of the pathway and bikeway systems;
- to promote safe, responsible and accountable behaviour among pathway/bikeway users;
- to reduce user conflicts;
- to promote the active living and active transportation lifestyle choices;
- to generate greater respect for the non-motorized mode users.

3.1.2 Delivering education programs

The Calgary Cycle Plan notes that historically, Calgary has suffered from the lack of a central organizing agency to find funding for, publicize and host education programs (at p.64). In order to effectively support linear recreation and increased use of the non-motorized modes, the City should establish a stable and centralized office which can coordinate and promote education programs through both City departments and outside agencies.

A great number of ways and means to provide education programs have been identified. The following agencies are providing or could provide education programs – either individually or in partnership with commercial sponsors:

- school boards
- Calgary Safety Council
- youth groups, e.g. scouts and girl guides

- community associations and the Federation of Calgary Communities
- Vandalism Awareness Patrol
- National Skate Patrol
- Elbow Valley Cycle Club
- Calgary Police Service
- Emergency Medical Services
- Calgary Parks & Recreation
- Calgary Transportation
- Calgary Regional Health Authority.

In addition to formal education programs and classes, public education can be delivered through a variety of media. These include:

- radio, television, and print advertising
- posters and brochures
- Pathway/Bicycle Route map
- special events, e.g. the Commuter Challenge, Clean Air Day
- internet websites
- signage.

Signage is discussed later in this report.

RECOMMENDATIONS

2. **A staff person (or persons) should be identified in the Parks Department who, as one of his/her roles, coordinates, supports and encourages public education programs relating to cycling, pathway use, and pedestrian issues through a variety of media.**

3. **The City of Calgary should sponsor an annual campaign to be carried out in spring/early summer, to raise awareness and encourage the use of the pathways and bikeways, and provide information about safety, etiquette and the rules of operation of these facilities. The campaign should be timed to coincide with the Commuter Challenge and/or Environment Week.**

3.2 ENFORCEMENT

Along with public education, enforcement is a critical tool to ensure that pathways and bikeways are used responsibly and safely, and to reduce some user conflicts.

Presently, there are only two Parks By-law officers responsible for providing enforcement of the by-law relating the pathways. The police mountain bike unit also provides support in pathway by-law enforcement; however, they attend to many higher priority issues.

The Parks By-law Enforcement officers fill multiple roles with respect to parks and pathways, and focuses on education and enforcement. The education approach is preferred for pathways, with enforcement powers reserved for obvious or repeat offenders.

Regarding bikeways and streets in general, enforcement measures need to be directed at motorists as well as cyclists.

RECOMMENDATION

4. **The parks and pathways enforcement division should be expanded to provide more extensive coverage of the city.**

3.3 ENCOURAGEMENT

Some programs can serve a dual purpose, and cover both education and encouragement of non-motorized modes. Examples from here and elsewhere include:

- environmental special events: e.g. Commuter Challenge, Bike to Work Week, Clean Air Day, Environment Week
- sporting/fitness, charity special events: Stampede Run-off, Terry Fox Run, etc.;
- encouraging formation of workplace Bicycle User Groups (BUGS).

These projects can garner media coverage and generally raise the profile of alternative transport. City initiatives can take a leading role in financially supporting programs and events which encourage non-motorized modes and active living and recreation.

Another encouragement tool is infrastructure improvements. Along with the identified routes, end-of-trip facilities are equally important to ensure that cyclists and pedestrians have a convenient place to change, shower, and store equipment at their workplace or other destination. Some discussion of the most important facilities is warranted here.

3.3.1 Bike parking

The Calgary Cycle Plan discusses bike parking specifications in detail. It also recommends (#23) that the Planning and Transportation departments "work toward" the development of bike parking requirements for inclusion in the Land Use By-law.

The Land Use By-law provides extensive detailed requirements for automobile parking associated with every land use and built form. There are no requirements to accommodate bike parking. Other jurisdictions have successfully incorporated bike parking requirements into development codes (e.g. Burnaby and Vancouver, B.C.).

This does not address the retrofit situation, however. Most of the city is already built-up and essentially devoid of bike parking, except that which is provided by private corporations or building owners for the exclusive use of their own employees; these bicycle parking facilities are usually located inside commercial buildings. While this provides added security for all-day users, there is no provision for short-term users.

There are a variety of bike parking options, which are set out in Appendix C of the Calgary Cycle Plan. It should be noted that there are simple and cost-effective ways to provide bike parking without going to the most expensive locker option.

Secure bike parking should be provided in City parking lots, whether for staff or for the public (municipal "P" lots). One car park space can accommodate 10 to 20 bicycles.

To ensure that the built-up area is also provided with bicycle parking, a funded program for municipally installed bike racks should be established. Funding could be obtained from a portion of the transportation budget, or from existing departmental budgets (e.g. Parks and Calgary Transit already provide bike racks at certain facilities).

The Transportation department should establish an annual budget amount for bike racks or lockers to be installed in key locations in the built-up area in public rights-of-way. Bike parking should be provided both for short term and long-term (all day) use. Short-term parking should be in an easily accessible and visible location such as the sidewalk.

Alternatively, the city administration could consider partnering with private sector firms to provide bike parking. For example a supplier could install bike racks at no cost to the city, and sell advertising space on the racks.

RECOMMENDATIONS

5. **The Calgary Parking Authority should continue to expand its bicycle parking program.**

6. **The Land Use By-law should be amended to require bicycle parking as a condition precedent to the granting of a development permit. Guidelines for the amount, location and design of bicycle parking required should be established.**

7. **Partnerships with private sector bike rack suppliers should be pursued.**

3.3.2 Amenities

Other amenities can make the urban environment more conducive to linear recreation and non-motorized transportation. In addition to secure bike parking, additional amenities should be provided throughout the city where appropriate.

3.4 SIGNAGE

Signage was identified as an area in need of significant improvement in Calgary. The Calgary Cycle Plan has covered some of this ground already, and should be used as a first reference: see Appendix B, Bicycle Sign Policy.

Presently, the pathways provide some informational signage about destinations and activities in major parks and recreation facilities. They generally do not provide information about non-City activities and facilities (e.g. shopping areas). Some, but not all, of the major pathway systems have names (e.g. Bow River Pathway, Nose Creek Pathway). A consistent system of regulatory, warning and directional signage is lacking.

Bikeway signs do not provide any information about potential destinations. The bikeway routes do not have names.

The public and stakeholders expressed interest in improving the level of information provided by signs for pathways and bikeways.

3.4.1 Policy direction

A number of signage issues arose in the course of the study which are not covered in Appendix B of the Calgary Cycle Plan. The stakeholder group indicated interest in improving the signage program to address and include the following components:

- **barrier-free design:** signs and tactile cues that are accessible to the visually impaired
- **warning signs:** pavement ends, stairs ahead, steep hill, sharp curve, etc.
- **destinations:** indicating the way to transit stations, schools, shopping areas, pools, arenas, etc.
- **facilities:** indicating washrooms, fountains, telephones, etc.
- **distance:** markers, distance to next important point
- **reference:** where a pathway crosses or passes over/ under a street or bridge the name of the street or bridge should be visible to pathway users. Community identification signs may also be helpful
- **location:** location markers to facilitate booking the pathway for special events, orientation for emergency services, and identifying the location of pathway closures

- **trail names:** major pathways and bikeways could be identified by a trail name which appears on the signs and on the map
- **user groups:** twinned pathways which separate certain users need to be clearly and frequently marked
- **roadways:** signs should emphasize sharing the road between motorized and non-motorized users
- **rules of operation:** periodically posting the pathway rules (keep right, audible warning when passing, yield half the pathway, speed limit) could improve safety awareness and reduce user conflicts
- **inaccessibility:** where sidewalks or pathways become inaccessible to wheelchair users, such as where a curb cut is absent or stairs are the only option, warning should be given well in advance so that users aren't forced to backtrack extensively.

With respect to the latter point, if an inventory of inaccessible locations is generated, it would be a preferable policy to improve or upgrade the locations to make them accessible, rather than to simply put up a sign and leave the problem in place.

The proposed signage plan set out below is intended to address these issues.

3.4.2 Proposed signage plan

The sign program should include the following elements.

- **trailhead markers or kiosks:** on major pathway routes and at pathway intersections, use a context map to indicate "You are here" and the important routes, destinations and services in the vicinity, including shopping districts, educational facilities, and rest stops (washrooms/ fountains/ telephones);
- **traffic control:** pathway signage should be consistent with roadway signage, e.g. yield, stop, etc.;
- **education signs:** the pathway rules of operation should be posted periodically along the route;
- **warning signs:** with respect to grades or hazards;
- **barrier-free design:** signs should be high-contrast, and kept clear of vegetation. Tactile cues should be used on pathways to indicate upcoming intersections, and changes in grade or direction;
- **location information:** street names, bridge names, and community names should be provided periodically and be easily visible on pathways and bikeways. Distance/location markers should be provided on pathways.

It should be noted that providing more information through signs need not create unnecessary visual clutter. Signs can be clear and informative, yet subtle. A more informative signage program should be aimed at reducing user conflicts and enhancing the functional qualities of the system.

RECOMMENDATIONS

8. **The Parks and Transportation departments should cooperate to create a pathway and bikeway signage program that is consistent between the two systems, and to the greatest extent possible consistent with the Highway Traffic Act and City of Calgary Traffic Operations Policy Manual. Bikeways should be signed in accordance with the Transportation Association of Canada's "Bikeway Traffic Control Guidelines for Canada (1999)" with respect to signage and pavement marking.**

9. **A comprehensive sign program should be implemented to address the issues set out in sections 3.4.1 and 3.4.2 of this report.**

4.0 LIFECYCLE MANAGEMENT

4.1 INTRODUCTION

The pathway and bikeway network is an extensive and complex system. In order for it to function effectively, it should be planned and managed as an integrated system. The departmental responsibilities in this regard are discussed in more detail in section 8, Implementation. In this section of the report, a strategy to allocate funding for new and replacement elements of the system is set out.

4.2 PATHWAYS LIFE CYCLE STRATEGY

The life cycle strategy is comprised of the following components:

1. Inspection schedule;
2. Repair schedule;
3. Relationship between inventory database, inspection and repairs;
4. Basis of the cost estimate for the top priority pathway projects.

The current pathway inventory is used as a tool to record pathway additions, pathway deficiencies as well as repair status. As the database is expanded to be linked with a City-wide GIS mapping and information system, the inventory data may be used to prioritize repairs or to establish long term priorities for pathway improvements. The following sections set out a methodology for extending the use of the database into these areas.

4.2.1 Inspection Schedule

The factors which influence the inspection schedule are as follows, in order of importance:

1. Public safety;
2. Risk of further pathway deterioration;
3. Public inconvenience.

A summary of proposed inspection frequencies is set out in Exhibit 4.1.

In general the entire system should be inspected annually (this is the current practice). Inspection should occur at a time of year when the pathways are sufficiently free of snow and ice to enable full observation of pathway conditions. If photographs are taken of problem spots they may be added to the database as an input.

	PATHWAY/ INFRASTRUCTURE TYPE	INSPECTION FREQUENCY
1	Pathways subject to flooding	following each flood
2	Pathways on slopes	spring and fall
3	Pathways with noted root/vegetation problems	moderate – semi-annually mild – annually
4	Subject to complaints	In response to complaints
5	Pathways with noted ponding problems	moderate – semi-annually mild – annually
6	High-use pathways, e.g. Memorial Drive corridor	semi-annually
6	All other pathways	Every 3 years
7	Handrails	incidental to pathway type 2 inspection
8	Lane markings	incidental to pathway inspection
9	Bike racks, lockers	incidental to pathway inspection
10	Pathway lighting	in response to complaints
11	Bikeway signage	annually

INSPECTION SCHEDULE EXHIBIT 4.1

IBI GROUP

The annual inspection and inventory of the system should also be timed to enable necessary repairs and work projects to be included in the upcoming year's budget submission.

Inspection and inventory of the system will be managed by the Pathway Coordinator.

4.2.2 Recommended Prioritization of Repairs

It is recommended that repairs or pathway modifications be prioritized on the basis of a combination of the severity of the problem and the level of pathway use. Problems that could pose a safety concern would take priority over problems that inconvenience users, e.g. pathway buckling due to tree roots would take precedence over puddles. An abbreviated example of how such a system would work is presented in Exhibit 4.2. The time frames shown for repair schedule are for illustrative purposes only.

4.2.3 Relationship Between Inventory Database, Inspection and Repairs

Currently, the City tracks a variety of attributes associated with the pathway system but does not track the bikeway system as such. It is proposed that a bikeway system database be created and linked to the existing pathway database.

Pathway attributes currently tracked include repairs related to pathway deterioration, recommended alterations for improved safety, amenities and signage. In addition, it is recommended that the following attributes be added to the database:

1. Date of pathway construction – will assist in determining whether spot repairs or complete pathway rehabilitation is appropriate for given circumstances.

2. Date of pathway repair – can help determine the effectiveness of previous repairs and appropriate action. For instance, a recurring erosion problem might be better dealt with through pathway re-routing rather than repeated repair attempts.

3. Location of recommended repairs.

4. Cost of repair - tracking the cost of repairs will assist in budgeting for typical repair items.

5. Cause of pathway or amenity damage – tracking the cause of damages serves two purposes. Recurrent vandalism at a location can be reported to the police. Typical rates of a damage type per kilometre of pathway can be established to determine long term budgeting.

6. Level of pathway use - to aid in establishing repair priority.

More discussion about the database and its inputs is set out in the Technical Report.

RANK	DESCRIPTION	LEVEL OF PATHWAY USE	SCHEDULE REPAIR WITHIN:
1	Imminent safety concern	all	1 week
2	Severe root buckling	high use	2 weeks
3	Severe erosion	high use	2 weeks
4	Severe washout onto path	high use	2 weeks
5	Severe root buckling	moderate use	4 weeks
6	Severe erosion	moderate use	4 weeks
7	Severe washout onto path	moderate use	4 weeks
8	Moderate root buckling	high use	3 months
9	Moderate erosion	high use	3 months
10	Moderate washout onto path	high use	3 months

REPAIR PRIORITY EXHIBIT 4.2

IBI GROUP

Replacement of pathways in the lifecycle process will require compliance with the current construction standards. The costs assumed for pathway replacement are set out in Exhibit 4.3.

4.3 BIKEWAY OPERATION AND MAINTENANCE

The City of Calgary operates a Pothole Patrol program. The program encourages motorists to call in and report the location of potholes. Potholes close to the curb are usually not a problem for motorists but are a major hazard for cyclists. A program for cyclists to report potholes and other hazards on bikeways is recommended. The program could consist of simply a hotline connected to a voice mail system, or an e-mail address to which hazards could be reported.

The hotline/ e-mail would be checked regularly and problems forwarded to the appropriate City department for action. Some of the hazards which might be reported include:

- damaged asphalt or potholes
- raised or damaged sewer grates
- sand or gravel deposits
- snow blocking a bikeway
- auto parts or debris
- confusing, missing or damaged bikeway signs
- faded pavement markings
- burnt out street lights.

RECOMMENDATIONS

10. The Lifecycle Replacement Strategy set out in section 4 of this report should be employed to determine the budget amount annually required for repair and rehabilitation of pathways indicating a high priority need for such work.

11. A bikeway hotline or e mail response system should be established to allow members of the public to report hazards or the need for repairs.

PROPOSED ITEM	COST PER LINEAL METRE	SOURCE
Bikeway signage (proposed system)	$1.00	City of Calgary Transportation Department
Pedestrian bridges	$3,300	City of Calgary Structures Department
Pathway through varied terrain	$110	Calgary Parks & Recreation estimate

PATHWAY AND BIKEWAY CONSTRUCTION COSTS

EXHIBIT 4.3

IBI GROUP

5.0 ANALYSIS OF PROPOSED ROUTES

5.1 INTRODUCTION

The study area for this project is comprised of southeast and southwest Calgary. The City steering committee provided an inventory of planned and proposed pathways and bikeways, taken from approved and proposed community plans, and an internal review of potential routes generated as part of the Calgary Cycle Plan implementation process. The City wishes to identify more on-street bikeways, and to determine the feasibility of adding new pathways, in order to improve the continuity and city coverage of the system.

Planned and proposed pathway and bikeway routes were analysed using a "ground truthing method". The routes were inspected by members of the study team. Pathway routes were evaluated using the criteria set out in Exhibit 2.2; bikeway routes were evaluated against the functional and general criteria set out in Exhibit 2.3 of this report. More detailed analysis of the roadway criteria set out in Exhibit 2.3 may be required for some bikeway routes, particularly for routes which may require changes to the road layout. Field notes and photographs were taken to create a record of the inspection process.

Consultations were held with representatives of Alberta TrailNet, the organization planning the Trans-Canada Trail routing for Calgary. Alberta TrailNet commissioned its own route selection study in 1999 to choose the western entrance point into Calgary, and selected the Highway 8/Glenmore Trail corridor as the preferred route to connect to Bragg Creek and points west.

In this study, the pros and cons of the Highway 8 route were examined at one of the stakeholder workshops. It is recommended that the City of Calgary support the preferred westerly access route to Calgary. As Alberta TrailNet continues to deliberate on the preferred Trans Canada Trail routes through the City, it is recommended that Parks continue to consult with TrailNet regarding the final route selection. Note: the by-laws of the City will apply when routing the Trans Canada Trail throughout.

Recommendations for the potential routes were made on the basis of route suitability and feasibility of implementation. The findings of the route analysis are set out in a Technical Report. The recommended routes, including the preferred Trans Canada Trail route, are shown on Map A, Pathway and Bikeway Plan, found in the Technical Report.

The City's Pathway and Bicycle Route Map is updated every two years. It is recommended that a process be established to identify and analyse potential routes on an ongoing basis, such that new routes can be added to the network in conjunction with the regular updates of the Pathway and Bicycle Route Map. Consultations with adjacent landowners, residents and community associations are recommended before new pathways or bikeways are installed.

RECOMMENDATIONS

12. That the pathway routes which have been identified as suitable for construction or installation be so indicated on the appropriate community plan or outline plan, and constructed at the time of development (in new communities), or as part of the Parks work program commencing in 2000 (established areas and missing links).

13. That the bikeways which have been identified as potential signed bike routes, bike lane, wide curb lane or bike corridor routes be evaluated against all the criteria in Exhibit 2.2 in consultation with adjacent residents and communities, and affected City departments. Ongoing route evaluation should be carried out to coordinate with the biennial production of the Pathway and Bicycle Route Map.

6.0 MISSING LINKS

6.1 INVENTORY

Based on the field investigations described in Section 5, a number of "missing links" in the system were identified. Missing links may include new pathways, new bikeways, and pedestrian/cycle overpass bridges.

The missing links were selected as candidate projects for construction based on a roundtable discussion among the field investigators, who each relayed their findings to the rest of the team.

Priority was established based upon the criteria set out in Exhibit 6.1. The discussion examined how closely a route corresponded to the objectives set out in the pathway and bikeway route selection criteria established in section 2 of this report. Likely utility of the route (potential population served) and an informal cost/benefit analysis were also considered. Where a nearby alternative route already exists, a proposed path was not considered a "missing link".

The list of candidate projects was narrowed by considering whether projects:

- are expected to be built by developers in the near term,
- would be addressed through anticipated road or LRT construction,
- are unlikely to be built unless land acquisitions occur,
- cannot feasibly be connected because development around discontinuous segments is complete.

Order-of-magnitude costs were estimated based upon the best available information.

The results of the Missing Links analysis are summarized in the tables set out in a Technical Report.

Missing links that cannot be planned for in this report are those that will occur along recommended pathway alignments on public land that is not being serviced by the developer. The Pathway Coordinator will ensure that these missing links are identified as early as the signing of the Developer Final Acceptance Certificate for regional pathways. When these missing links are identified, they will be classified as priority one development items by the City and budgeted for within the upcoming 5 year capital envelope.

MISSING LINKS: PRIORITIZATION CRITERIA

I. Functional Criteria

- importance to the network
- enables or improves crossing of a major/arterial road, railway or water
- connects to other pathways (regional, local) and/or bikeways
- connects neighbouring residential areas to each other
- makes route more direct
- improves safety of existing connection
- already an informal link
- good potential for use
- cost

II. Location Criteria

- prefer routing through public property
- should minimize loss of significant vegetation (e.g. mature trees)
- connects to existing infrastructure (signalized intersections, pedestrian crossings)
- distance from existing linkages
- ability to tag on to planned road/bridge (re)construction
- safety of road/pathway interface
- personal security / informal surveillance
- construction feasibility

MISSING LINK PRIORITIZATION CRITERIA EXHIBIT 6.1

IBI GROUP

RECOMMENDATION

14. Key missing links, including new pathways, new bikeways and pedestrian/cycle overpasses should be identified as early as the signing of the Developer Final Acceptance Certificate for the subdivision. When the missing links are identified, they will be classified as priority one development items by the City and budgeted for within the upcoming 5 year capital envelope.

7.0 FUNDING

In order for the goals and objectives of this plan to be realized, funding must be secured. It is desirable to establish a secure base of funding for both the pathways and bikeways to ensure continued expansion, development, maintenance and lifecycle replacement of these important urban facilities.

Through analysis of the existing funding system and the public participation process, a number of potential sources for funding were identified. Some of these are existing sources, and others are new sources. Potential funding sources from both within the City administration and outside it are discussed below.

7.1 INTERNAL SOURCES

7.1.1 Transportation planning

Since the adoption of the Calgary Transportation Plan (CTP) in 1994, there have been numerous plans and initiatives undertaken to implement the principles of the CTP. Bicycle and pedestrian issues should be addressed in all transportation plans undertaken, such as the Inner City Transportation Study, LRT functional studies, the North Sector Transit Planning Study, community traffic studies, or any other transporation planning initiatives.

Bicycle and pedestrian needs can best be provided for in a cost-effective manner when they are dealt with at the design stage. In particular, when road widening, bridge reconstruction, or new roads are being planned, cyclist/pedestrian access must be addressed. For example, when new communities begin development, the City pays for and constructs the major, expressway and freeway roads. Planning from the outset for pedestrian/cycle access on and across these roads will obviate the need to spend more money later to retrofit inappropriate or inaccessible designs.

7.1.2 Recreation planning

The City of Calgary has a major program of planning and development for parks and recreation facilities. Where possible, pathways should connect to parks and recreational facilities, and be incorporated into the site plan and project budget at the design stage. This will ensure that pathways continue to be a component of the City's overall recreation strategy, and are provided in a cost-effective manner.

7.1.3 Network Funding

As part of the establishment of a Pathway/Bikeway administrative team, a budget should be established to provide for capital and programming budget items over a 6-year budget horizon.

7.2 EXTERNAL SOURCES

7.2.1 Community planning

The pathway system continues to expand into new subdivisions under the auspices of the standard development agreement, whereby developers are required to build regional pathways as part of the parks and open space program. This practice makes a major contribution to the expansion of the pathway system, and should continue as it ensures that the regional pathway system is part of every new community.

However, at present there is no provision for constructing bikeways in the standard development agreement. Developers are responsible for building subdivision roads up to the collector level. The City should work with the development industry to ensure that bikeways are incorporated into new communities, similar to the present practice respecting pathways. City staff and developers can jointly identify roads suitable for bikeway routes at the planning stage, and employ appropriate designs to accommodate bicycles when the roadways are constructed. The new bikeways should connect to the existing bikeway network, as well as to existing and planned pathways.

7.2.2 Provincial funding

The province of Alberta has recently indicated its intention to develop a strategy to reduce greenhouse gas emissions, consistent with the Kyoto Protocol. It is important that the City of Calgary support the non-motorized modes by promoting pathway and bikeway use as ways to reduce the City's emission levels.

Furthermore, the City should be a major force in lobbying the province to:

- recognize the non-motorized modes as a positive tool to improve air quality, and
- fund programs and facilities which support non-motorized modes.

The province provides monies specifically for trail building through:

Alberta Sport, Recreation, Parks and Wildlife Foundation: Alberta Community Development

- this agency is funded through Lottery monies. Government departments may be considered for grants through partnerships; government agencies may be funded through arms' length bodies (societies, councils, etc.)

A more traditional funding source which may be accessible for non-motorized modes is:

The Alberta Cities Transportation Partnership – Basic capital grants

- Although this program primarily provides cost-sharing grants for primary highways, major truck routes through cities and major public transit system requirements, it also

includes Barrier-Free Transportation initiatives to improve accessibility for seniors and persons with disabilities. It may be possible that this program could cover pathways or improvements thereto directed towards enhancing accessibility.

The following provincial initiatives may assist in research or education relating to non-motorized modes and active living.

Climate Change Central – the Roundtable on Climate Change

This group released its report in May, 1999 and is expected to work on developing a strategy to address climate change issues in Alberta.

Provincial Active Living Network – comprised of individuals, groups, companies, municipalities and organizations to promote active living; includes Alberta Community Development as a member. Program delivery and service groups include:

- *The Alberta Centre For Well-being* - a provincial organization mandated to enhance the health and well-being of Albertans by providing leadership and creating educational, research and networking information for wellbeing professionals.

- *Alberta's Be Fit For Life Network* - made up of a coordinating Provincial Centre and seven Regional Resource Centres. Provides a mechanism to share information and offer services and programs to promote regular physical activity and other healthy lifestyle practices.

Clean Air Strategic Alliance (CASA) – a network of government and non-government groups, including Alberta Ministry of Environment, which conducts research on air quality issues.

7.2.3 Federal funding

In the past, National Infrastructure Programs (NIP's) have been fertile sources of funding for pathways, roads and bridges. These programs appear to be a regular feature of federal budgets and should continue to be accessed when in place.

There are several federal funding programs which are aimed at improving air quality, creating livable communities or counteracting climate change. Departments working on these issues include the Ministry of Environment, Ministry of Health and Transport Canada. Funding may be available for capital projects, education and awareness campaigns, and special events. Programs include:

- **Climate Change Action Fund** – Climate Change Secretariat (Natural Resources, Environment Canada)

    - providing funding for projects which work towards the goal of meeting the targets of the Kyoto Protocol on Climate Change – reduction of greenhouse gases

- municipal government, business, non-profit organizations are all eligible
- not available to provide "core funding for existing programs"
- there are a number of application deadlines through 2000 and 2001

- **Clean Air Day** – Environment Canada
  - provides funding for Calgary's Commuter Challenge which takes place during Environment Week
- **Eco-Action 2000** – Environment Canada
  - provides funding to non-government, non-profit agencies for environmental initiatives.

7.2.4 Outside agencies

Governments are not the only source of funding. Non-profit and environmental agencies make monies available for environmentally-positive initiatives. These groups may not provide capital funding, but often provide money to put towards studies or plan implementation (e.g. education programs, special events).

Examples of agencies which may help fund pathway and bikeway-related projects and programs include:

- Sustainable Alberta
- Alberta Environment Network Society
- Alberta Sport, Recreation, Parks and Wildlife Foundation - will fund trail-building
- Go for Green – this national non-profit agency, partially funded by Environment Canada, provides education, information, and networking opportunities relating to active transportation initiatives. It has recently entered a 10-year partnership with Compaq Corporation to provide seed money funding towards the purchase and conversion of abandoned railway lines into recreational trails
- Calgary Parks Foundation
- Alberta TrailNet
- Trans-Canada Trail Foundation.

Private corporations which provide funding for environmental initiatives include:

- Canada Trust: Friends of the Environment Canada Fund and Community Fund

- Allstate Foundation Canada - provides financial support to registered charitable organizations delivering educational programs on the environment.

- Shell Environmental Fund - projects must be action-oriented to improve and protect the Canadian environment.

The Government of Alberta's Ministry of Agriculture, Food and Rural Development website maintains a list of outside agencies which will contribute to funding for environmental projects: see the listing at:
www.agric.gov.ab.ca/sustain/programs/organizations.html.

7.2.5 Community groups

Many of the outside agencies listed in the previous section do not provide funding to municipal governments but will fund non-profit groups. Calgary is rich in non-profit societies, a term which encompasses most of the community associations, as well as numerous other environmental, sports and community development groups (e.g. Sustainable Calgary, Clean Calgary, etc.). These groups should be encouraged to create their own pathway planning and improvement projects, using outside sources of funding. The pathway/bikeway coordinators' office would be the ideal link through which City and community goals could be harmonized.

Existing community resource programs could be expanded to encompass the pathways, such as the Adopt-a-Park program. There is also the option of a special tax levy for local improvements; this requires a petition demonstrating 2/3 of the affected area residents support the initiative.

This list of funding sources indicates that many of the recommendations in this report could be funded at least in part through outside agencies. In particular, education and awareness programs, special events and promotions may be able to make use of existing resources, such as information brochures and literature from other organizations.

RECOMMENDATIONS

15. Bicycle and pedestrian issues must be addressed in all transportation plans and studies. Pathways should be considered and included where possible in all parks and recreational facility plans. The pathway and bikeway coordinators should be consulted in the course of such planning initiatives.

16. The City should continue to partner with other governments, outside agencies and community groups to access funding to support education, promotion and development projects related to the pathway / bikeway system.

8.0 IMPLEMENTATION STRATEGY

8.1 ADMINISTRATIVE FRAMEWORK

8.1.1 Introduction

To achieve a successful pathway and bikeway planning program, three elements are needed:

1. designated staff who are committed to recreation and non-motorized transportation initiatives;

2. an active citizens' advisory committee on recreation and non-motorized transportation issues;

3. civic officials willing to support recreation and non-motorized transportation programs.

This plan addresses the first two administrative elements; it is hoped that strengthening the administrative support for recreation and non-motorized transportation will encourage political support for same.

8.1.2 Coordination Team

It is recommended that a Pathway/Bikeway coordination team be established to coordinate the pathway and bikeway systems, dealing with both recreation and non-motorized transportation concerns.

Presently, there are extensive staff resources in the Parks department dedicated to pathway planning, design, development, and maintenance. Hence there is a strong case to be made for an overall pathway coordinator position within these divisions.

Therefore, appointment of a counterpart coordinator in the Transportation department is imperative. Presently there is no single person responsible for bikeway planning, design, development or maintenance, or for general cycle/pedestrian issues that arise in roadway planning. A coordinator charged with these responsibilities would create a channel for the public, developers and administration to refer questions about bicycle/pedestrian issues and road design to the city administration.

The pathway and bikeway coordinators, through the establishment of a Pathway/Bikeway coordination team, would:

- manage and direct the planning, design, construction, maintenance, lifecycle replacement and operations of the pathway and bikeway system;

- educate staff from other departments where necessary about cycle/pedestrian issues;

- consult with community planning staff;

- consult with local communities and citizens on specific projects;
- provide staff support to the Citizen's Advisory Committee;
- liaise with other levels of government, outside agencies and interest groups;
- other related duties as necessary.

A conceptual diagram showing the proposed linkages between the Pathway and Bikeway Coordinators' offices, and other administrative departments, is set out in Exhibit 8.1.

RECOMMENDATION

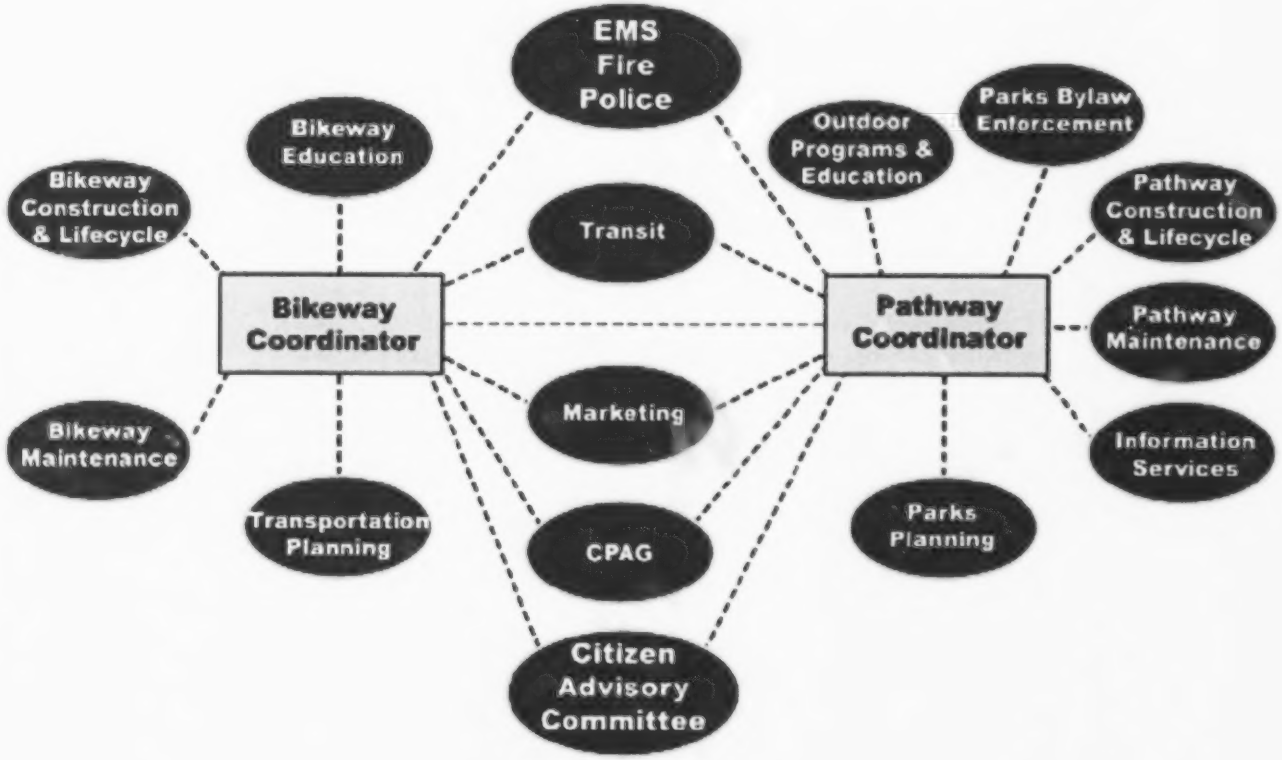
17. That Pathway and Bikeway co-ordinator positions be established within the Parks and Transportation divisions to coordinate the planning, development, design, operations and maintenance of the Pathway and Bikeway systems.

8.1.3 Advisory committee

The Calgary Pathways Advisory Committee (CPAC) was created in 1989 as an advisory committee to City Council. It has been an example of the successful use of ongoing public participation in civic administration. Its mandate is limited to making comments and recommendations about the pathway system to Council; there is no mechanism for committee members to comment on the bikeway system. Ideally, a single citizens' advisory committee should be mandated to address both pathway and bikeway issues.

Council should be approached to modify the Terms of Reference and expand the mandate of CPAC members to:

- include bikeways as a joint mandate with pathways;
- provide a broad range of experience and expertise to emerging issues;
- participate in route evaluation field work;
- undertake community participation and liaison activities;
- develop education and awareness campaigns;
- promote cycling and other non-motorized modes as an alternative to the automobile;
- promote expansion of the pathway and bikeway network;
- participate in planning processes for special projects such as LRT expansion or major redevelopments (e.g. CFB, former General Hospital site);



CONCEPTUAL ADMINISTRATIVE LINKS -
PATHWAY AND BIKEWAY COORDINATORS

EXHIBIT 8.1

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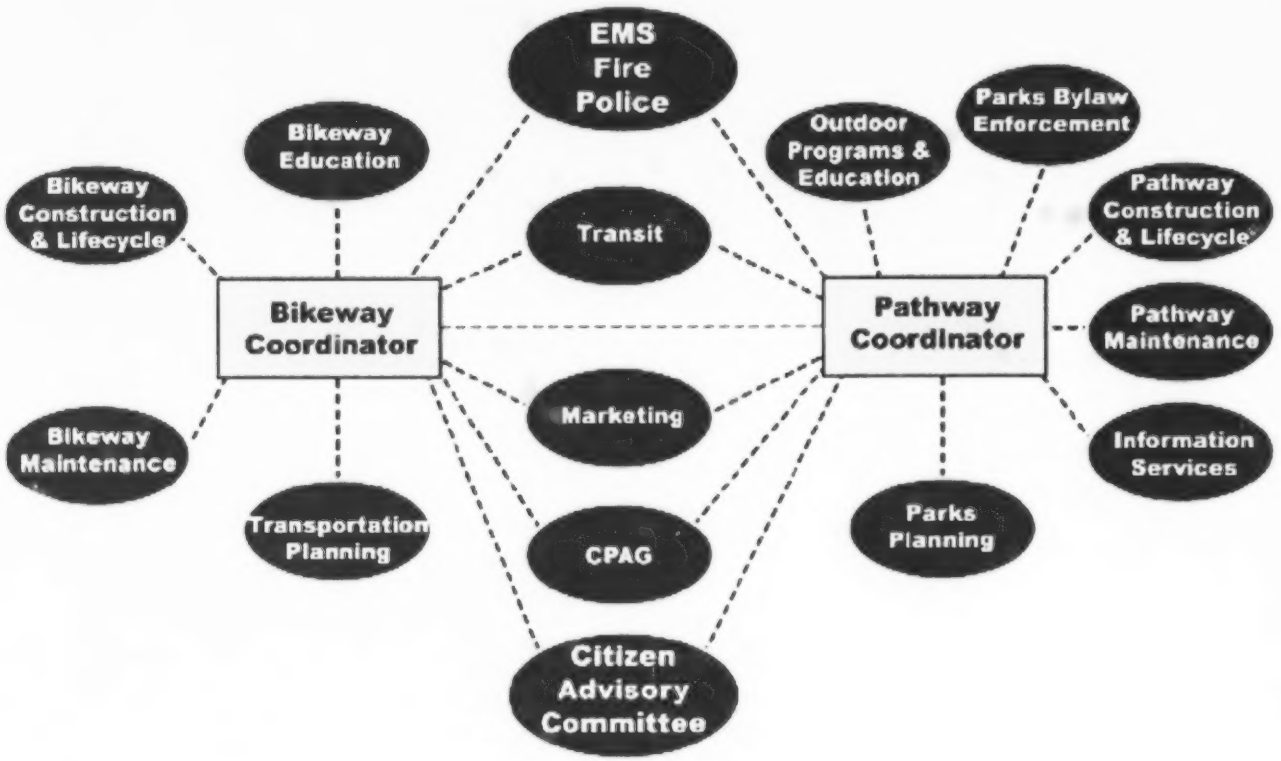

CONCEPTUAL ADMINISTRATIVE LINKS - PATHWAY AND BIKEWAY COORDINATORS **EXHIBIT 8.1**

IBI GROUP

- lobby for facilities, e.g. bike parking, workplace shower/change rooms, bike racks on buses;
- lobby other levels of government for policy/ legislative changes;
- serve as ambassadors to the larger community;
- provide an ongoing communication link between the public, user groups and the city administration.

RECOMMENDATIONS

18. Administration should investigate the expansion of the existing committee (CPAC), or development of a new Citizens' Advisory Committee to address both pathway and bikeway issues.

The Citizens' Advisory Committee should encompass representatives from a cross-section of stakeholders and relevant agencies including:

- **the general public**
- **runners, walkers, hikers**
- **cyclists, bicycle messengers**
- **persons with disabilities**
- **youth, seniors**
- **in-line skaters and skateboarders**
- **other pathway providers (e.g. Fish Creek Provincial Park)**
- **community associations**
- **school boards, universities and/or colleges.**

8.2 DEPARTMENTAL RESPONSIBILITIES

A number of recommendations are required to ensure that the pathways and bikeways are appropriately planned and managed. In addition to the duties to be taken on by the Pathway and Bikeway Coordinators, some specific items which should be explicitly adopted into the administrative process are addressed below.

8.2.1 Transportation and Parks – Land Use Planning

Linear recreation and non-motorized transportation concerns should be dealt with in all planning processes. While this is easy to say, it requires education and vigilance to

ensure that it actually occurs through the Corporate Planning Applications Group (CPAG) process. CPAG should ensure that pathways and bikeways are identified early in the community planning process, and are treated as a core facility in plans.

RECOMMENDATIONS

19. The Corporate Planning Applications Group (CPAG) planning process should ensure that:

At the Community Plan stage, pathway alignments and bikeway routing are identified. These facilities should connect to existing and planned linear recreation/ non-motorized mode facilities in adjacent developments.

At the Outline Plan stage, pathway and bikeway routes are finalized.

8.2.2 Transportation Planning

All the major divisions of the Transportation Department are involved in both pathway and bikeway issues. For example:

- Transportation Planning has taken on the responsibility of bikeway planning and cycling issues in general;
- Calgary Transit carries out its own planning and design for LRT station areas, including pathway alignments;
- Traffic Operations designs and manages intersections, traffic controls, pedestrian corridors, parking meters, etc.

When a Coordinator is appointed within the Transportation Department to oversee the bikeways, that staff person will be able to liaise with each of the three divisions noted above to coordinate bikeway issues, and provide a communication link to the Parks department about pathway issues.

In order to effectively carry out bikeway planning and development, the Transportation Department should be given the responsibility and the budget to carry out the following:

- include cyclists and pedestrians in transportation counts
- maintain a database of collisions involving cyclists and/or pedestrians.

This type of baseline information is necessary to have a complete overview of the entire transportation system, including non-motorized modes. It can be used to:

- identify locations that need improved cycle/pedestrian facilities;
- analyse the effectiveness of measures after being installed.

RECOMMENDATION

20. The Transportation Department should expand current cyclist and pedestrian traffic counts, and maintain a database of collisions involving cyclists and/or pedestrians.

Detour policy

An effective detour policy is needed to maintain the functionality of the Pathway and Bikeway system. There is a detour policy in place for pathways which may be closed for construction, maintenance or winter. This policy should continue to be applied. A similar policy should be developed for the bikeway system.

RECOMMENDATION

21. The Bikeway coordinator should develop a detour policy to address closures of the bikeway system through the Pathway/ Bikeway Coordination team. The detour policy should entail:

- **advance notice of closures by on-site signage;**
- **identification of a suitable detour route for the duration of the closure;**
- **provision of directional signs advising of the detour route;**
- **consultation with the Bikeway coordinator in all major road construction projects at the planning stage.**

8.2.3 Calgary Roads

Calgary Roads has the responsibility for maintenance and operations of both roadways and pathways. This division:

- is presently responsible for inspecting and maintaining regional pathways in street rights-of-way, where the pathway doubles as or is provided in lieu of a sidewalk;
- maintains roadways, including designated bikeways;
- is involved in design and installation of traffic calming measures;
- is responsible for incorporating bikeway and pathway facilities into bridge, overpass and major road construction projects.

RECOMMENDATION

22. That Calgary Roads identify a staff person who meets on a regular basis with the Pathway & Bikeway Coordinators to ensure that pedestrian, bicycle, pathway and bikeway issues are co-ordinated and dealt with consistently.

8.2.4 Parks

Presently, numerous divisions and sections of the Parks Department are responsible for pathway planning, design, maintenance and repair. In order to ensure that the present and future pathway system is compliant with this and other policies, it is recommended that the Pathway Coordinator be the centre for resources and departmental approvals regarding pathway issues.

There are a few matters which are not presently dealt with in a comprehensive way within the Parks department. These are:

- a pathway counting program; and
- co-ordination of pathway bookings.

Pathway counts

As was recommended for the Transportation Department, it is recommended here that user counts on key pathways be conducted on a regular basis. Users should be counted according to the mode they use. This baseline data can be very important in determining how well the system is functioning and where it needs improvement. Examples of how this data can be used include the following:

- to determine high use areas – relevant to decisions to upgrade, widen, twin, or provide winter maintenance;
- to determine where pathways are under-utilized – indicates a need for additional promotion or marketing;
- to develop a profile of the typical or dominant user, by geographical location – useful for route planning and design which is context-specific;
- to indicate whether under-utilized pathways that require lifecycle funding should be considered for elimination;
- comparison with roadway counts – where a parallel bikeway exists, data can be used to determine whether cyclists have been encouraged to use alternative facilities.

RECOMMENDATION

23. The Pathway/Bikeway Coordination Team should develop a program for conducting pathway and bikeway counts every two years, as well as user surveys every four or five years.

Information Services / Pathway hotline

Groups often seek to "book" sections of the pathway system for special events, such as a charity run or Stampede event. These bookings are presently carried out on an ad hoc basis. A more formal system needs to be established by the Information Services section to ensure that bookings are fair and orderly, and to ensure that sufficient notice of any pathway special use is publicized.

Information services is also responsible for updating the Pathway Hotline. This service allows the public to inform the City of problems noted on the pathway system, and obtain information on pathway closures.

Finally, the general public can call Information Services directly to receive up-to-date information on specific programs, activities, events and maintenance/ lifecycle work that are occurring on the pathways.

RECOMMENDATION

24. The Pathway Coordinator should work closely with the "Information Services" section of Parks to:

- **establish a booking system for pathway programs;**
- **ensure the Pathway Hotline is up-to-date; and**
- **ensure that Information Services has sufficient information to answer general public enquiries regarding the pathways.**

8.2.5 Location Markers

The pathway system reaches into most corners of the City. If an emergency arises on a pathway, there is not always an easy way to identify one's location. A set of field markers along the pathways should be provided to serve as location identifiers to aid emergency service providers. These markers will also assist Information Services in booking specific sections of the pathway for programs and events, and for identifying pathway closures to the public.

RECOMMENDATION

25. The Pathway Coordinator should establish location markers along the entire pathway system in conjunction with the development of the signage master plan.

8.2.6 Staff Awareness

As noted in this section, responsibility for the pathway and bikeway system is not limited to the Parks and Transportation departments. In many ways, numerous other departments and divisions within the City administration will be required to implement the objectives of this plan. These include:

- Calgary Roads
- Calgary Parking Authority
- Calgary Transit
- Calgary Police Service
- Planning & Building – Policy, CPAG divisions
- Corporate Properties – as developer of industrial property.

If the principles and guidelines set out in this plan are communicated to the many City divisions listed above, there is a much greater likelihood that the plan will be implemented at the appropriate stage of the city-building process. To achieve a broad understanding of the plan, it is recommended that all the affected departments be provided with internal staff education about the Pathway and Bikeway Plan.

Communication could take the form of a briefing, circulation of the plan's recommendations, a presentation, or a workshop with key department members to work through the detailed decisions about who is responsible for implementing the recommendations and how that could be achieved.

RECOMMENDATIONS

26. That City staff from all affected departments should be provided with appropriate communication and education to inform them of the objectives and principles of the Pathway and Bikeway plan.

8.2.7 By-law amendments

Through the course of the study a number of by-law provisions or departmental policies were found to be in conflict with each other. These conflicts should be resolved. Areas for action are highlighted below.

Off-leash areas and pathways

There is ambiguity as to which rules apply when a pathway runs through an off-leash area: the Animal Control By-law, or the Parks By-law. For the safety of all pathway users including dogs, it is recommended that the by-laws be clarified and made consistent with each other.

RECOMMENDATION

27. That the Animal Control by-law (23M89) be amended to indicate that dogs in an off-leash area must not be on the pathway unless:

- **the dog is under its owner's control; and**

- **the dog and owner do not occupy more than half of the pathway, and keep to the right except to pass;**

and that the Parks By-law (36/76, as amended) be amended to be consistent with the Animal Control By-law, according to the foregoing terms.

Pathways and sidewalks

The rule that sidewalks which form part of the regional pathway system are deemed to be pathways, such that cycling is permitted, should be formalized. Cycling should be expressly permitted on bridge sidewalks, unless it is clearly unsafe to permit same. See the discussion in section 2.4.3 which details the recommended changes.

8.3 SUMMARY

The recommendations set out throughout the report are summarized and tabulated in Exhibit 8.2. The table indicates the subject area, issue, action required, time frame, person or department responsible, and implications and budget requirements associated with the action. Time frames are indicated as follows:

- Short term: 1-2 years
- Medium term: 3-5 years
- Long term: more than 5 years.

This table should be used as a reference to monitor the progress of plan implementation.

SUBJECT AREA	ISSUE	ACTION	RECOM-MENDATION NUMBER	TIME FRAME	RESPONSIBILITY	DISCUSSION	BUDGET IMPLICATIONS
GUIDING PRINCIPLES	Vision statement	Adopt vision statement	1	short term	Transportation, Parks	Should be endorsed by the public and stakeholders	internal staff process
	Transportation and recreation	Plan for pathways and bikeways as both transportation and recreation facilities	1	short term	Transportation, Parks	Clarification and reinforcement of existing practice	internal staff process
	User groups	Retrofit pathways to accommodate multi-use	1	medium to long term	Parks	Should occur through lifecycle replacement	through lifecycle budget
	User groups	Permit skaters on low volume roads	1	medium term	Transportation; City Council; Province	Should be accompanied by by-law provisions regarding safety; requires amendment of HTA	may require some additional study
	User groups	Permit cycling on bridge sidewalks	1	short term	Transportation; City Council	By-law amendment	internal staff process
	User groups	Lift ban on skating/ skateboarding on downtown sidewalks	1	medium term	Transportation; City Council	Should be accompanied by by-law provisions regarding safety	internal staff process
	Network planning	Adopt network planning principles	1	short term	Transportation, Parks	Policy revision and update	internal staff process
	Pathway route selection and design criteria	Adopt pathway route selection and design criteria	1	short term	Parks	Revised policy - should be consistent with new Open Space Plan	internal staff process
	Pathways in boulevard	Adopt revised criteria	1	short term	Parks	Revised policy	internal staff process
	Pedestrian/Cycle overpasses	Adopt revised criteria	1	short term	Parks	Revised policy	internal staff process
	Pathway design guidelines	Adopt pathway design and construction standards	1	short term	Parks	Revised policy; may require updating of Construction Standards Manual; may require consultation with UDI	internal staff process
	Bikeway route selection process and criteria	Adopt process and criteria	1	short term	Transportation	Revised policy	internal staff process
	Bikeway design options and criteria	Adopt new designs and criteria	1	short to medium term	Transportation	Revised policy	internal staff process
	Traffic calming	Ensure traffic calming designs are safe for cyclists	1	short to medium term	Transportation / Roads	May require study using outside consulting services	internal staff process or consultant fees
	Bikeway spring and winter maintenance	Coordinate a program for priority maintenance and inspection of bikeways	1	short to medium term	Transportation / Roads	Revised policy	internal staff process

IMPLEMENTATION STRATEGY

SUBJECT AREA	ISSUE	ACTION	RECOM-MENDATION NUMBER	TIME FRAME	RESPONSIBILITY	DISCUSSION	BUDGET IMPLICATIONS
ANCILLARY PROGRAMS & FACILITIES	Safety education	Create an education coordinator position	2	short term	Parks and/or Transportation	New staff position	staffing costs
	Safety education	Annual spring campaign - safety, encouragement, awareness	3	short term	Transportation; Parks; Police	Opportunity for Parks, Transportation, Transit, Police to work together promoting alternative transport	could use existing promotions budgets
	Pathway enforcement	Expand staff	4	short term	Parks		additional staff
	Bicycle parking	Continue to expand bicycle parking program	5	medium term	Calgary Parking Authority	Opportunity to create and use innovative designs	cost of design and implementation
	Bicycle parking	Enact Land Use Bylaw amendment requiring bike parking	6	short term	Transportation, Planning	Consultation with development industry may be warranted	internal staff process
	Bicycle parking	Pursue private sector partnerships	7	short to medium term	Transportation		try to use public/private partnerships
	Signage program	Create comprehensive signage program for pathways and bikeways	8,9	short to medium term	Transportation, Parks	May require outside consultants	consultants' study
LIFECYCLE	Lifecycle replacement strategy	Adopt lifecycle replacement strategy	10	short to medium term	Parks	Modification of existing procedure	internal staff process
	Bikeway hotline	Establish hotline or e-mail for public to report on bikeway hazards	11	short to medium term	Transportation	Similar program to Pathway Hotline	internal staff process
ROUTE ANALYSIS	Proposed pathway routes	Implement proposed routes	12	medium to long term	Parks, developers	Routes in new areas will be built by developers; City to complete network in established areas	City's responsibilities will be included in capital budgets
	Proposed signed bicycle routes, bike lane, bike corridor and wide curb lane routes	Evaluate and implement proposed routes	13	short to medium term	Transportation; Bikeway coordinator	Use evaluation criteria and consultation with residents, communities and city departments. Route implementation should be co-ordinated with biennial production of Pathway and Bike Route Map	internal staff process
MISSING LINKS	Identified missing links	Include key missing links in Pathway/ Bikeway budget	14	short term	Transportation, Parks	May need to allocate identified links over a 3 to 5 year period	internal staff process; capital budget expenses

SUBJECT AREA	ISSUE	ACTION	RECOMMENDATION NUMBER	TIME FRAME	RESPONSIBILITY	DISCUSSION	BUDGET IMPLICATIONS
FUNDING	Transportation planning, Recreation planning	Include bicycle/pedestrian issues in all transportation plans and recreation plans	15	short term	Transportation, Parks; City Council	Requires consultation with Pathway and Bikeway coordinators	internal staff process
	Federal, provincial, non-government agencies	Partner with other governments and groups to access funding	16	medium to long term	Transportation, Parks		internal staff process
ADMINISTRATIVE FRAMEWORK	Staff coordination	Create Pathway/ Bikeway Coordinator positions	17	short term	Transportation, Parks	Pathway coordinator position already created; counterpart in Transportation is imperative	one new staff position
	Citizens' Advisory Committee	Expand mandate of existing committees or develop new Citizens' Advisory Committee to address both pathway and bikeway issues	18	short term	Parks and/or Transportation; City Council	Terms of Reference and mandate to be struck; staff support from both Parks and Transportation is important	staff support included in Pathway/Bikeway coordinator budget
DEPARTMENT RESPONSIBILITIES	Planning process	Identify pathways and bikeways at community plan stage	19	short term	Transportation, Parks, Planning - CPAG	Requires greater interaction between the 3 departments; may require staff briefing	internal staff process
	Base line data	Include cyclists/ pedestrians in traffic counts	20	short to medium term	Transportation	May require manual counts	staff time (summer students)
	Detour policy	Establish and implement detour policy for bikeways	21	medium term	Bikeway Coordinator	Requires temporary signs, alternative routing	internal staff process
	Roads Division liaison	Identify staff member to coordinate with Pathways/ Bikeways team	22	short term	Engineering & Environmental Services	Purpose is to facilitate better communication between Roads, Parks and Transportation	make use of existing staff
	Base line data	Conduct pathway counts and user surveys	23	short to medium term	Parks	May require manual counts	staff time (summer students)
	Information Services / Pathway hotline	Establish information and booking system for pathways	24	medium term	Pathway Coordinator	Use existing staff	internal staff process
	Location markers	Install field location markers	25	medium term	Pathway Coordinator	Could be part of comprehensive sign program	internal staff process
	Staff awareness	Raise awareness of Pathway/Bikeway Plan objectives	26	short term	Transportation, Parks	May entail presentations, and ongoing liaison and networking with departments require outside implementing the plan	internal process; may consultants
MISCELLANEOUS AMENDMENTS	Pathways through off-leash areas	Clarify Annual Control and Parks by-laws to make them consistent with each other	27	short term	Parks; City Council	Requires council approval	internal staff process

IBI GROUP